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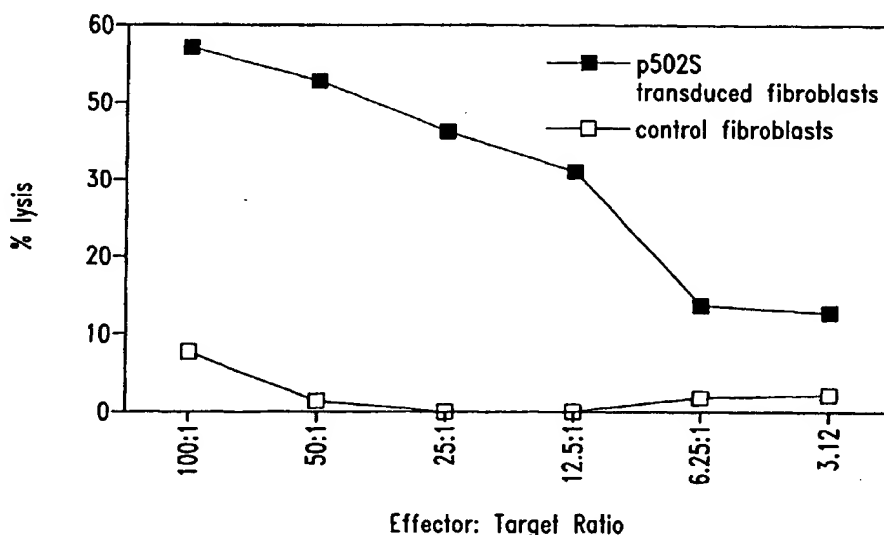
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(54) Title: COMPOSITIONS AND METHODS FOR THE THERAPY AND DIAGNOSIS OF PROSTATE CANCER



(57) Abstract: Compositions and methods for the therapy and diagnosis of cancer, such as prostate cancer, are disclosed. Compositions may comprise one or more prostate-specific proteins, immunogenic portions thereof, or polynucleotides that encode such portions. Alternatively, a therapeutic composition may comprise an antigen presenting cell that expresses a prostate-specific protein, or a T cell that is specific for cells expressing such a protein. Such compositions may be used, for example, for the prevention and treatment of diseases such as prostate cancer. Diagnostic methods based on detecting a prostate-specific protein, or mRNA encoding such a protein, in a sample are also provided.

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COMPOSITIONS AND METHODS FOR THE THERAPY AND DIAGNOSIS OF PROSTATE CANCER

5 TECHNICAL FIELD

The present invention relates generally to therapy and diagnosis of cancer, such as prostate cancer. The invention is more specifically related to polypeptides comprising at least a portion of a prostate-specific protein, and to polynucleotides encoding such polypeptides. Such polypeptides and polynucleotides may be used in vaccines and pharmaceutical compositions for
10 prevention and treatment of prostate cancer, and for the diagnosis and monitoring of such cancers.

BACKGROUND OF THE INVENTION

Prostate cancer is the most common form of cancer among males, with an estimated incidence of 30% in men over the age of 50. Overwhelming clinical evidence shows that human prostate cancer has the propensity to metastasize to bone, and the disease appears to progress
15 inevitably from androgen dependent to androgen refractory status, leading to increased patient mortality. This prevalent disease is currently the second leading cause of cancer death among men in the U.S.

In spite of considerable research into therapies for the disease, prostate cancer remains difficult to treat. Commonly, treatment is based on surgery and/or radiation therapy, but
20 these methods are ineffective in a significant percentage of cases. Two previously identified prostate specific proteins - prostate specific antigen (PSA) and prostatic acid phosphatase (PAP) - have limited therapeutic and diagnostic potential. For example, PSA levels do not always correlate well with the presence of prostate cancer, being positive in a percentage of non-prostate cancer cases, including benign prostatic hyperplasia (BPH). Furthermore, PSA measurements correlate
25 with prostate volume, and do not indicate the level of metastasis.

In spite of considerable research into therapies for these and other cancers, prostate cancer remains difficult to diagnose and treat effectively. Accordingly, there is a need in the art for improved methods for detecting and treating such cancers. The present invention fulfills these needs and further provides other related advantages.

30 SUMMARY OF THE INVENTION

Briefly stated, the present invention provides compositions and methods for the

diagnosis and therapy of cancer, such as prostate cancer. In one aspect, the present invention provides polypeptides comprising at least a portion of a prostate-specific protein, or a variant thereof. Certain portions and other variants are immunogenic, such that the ability of the variant to react with antigen-specific antisera is not substantially diminished. Within certain embodiments, the polypeptide comprises at least an immunogenic portion of a prostate-specific protein, or a variant thereof, wherein the protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of: (a) sequences recited in any one of SEQ ID NOs: 1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382, 384-476, 524, 526, 530, 531, 533, 535 and 536; (b) sequences that hybridize to any of the foregoing sequences under moderately stringent conditions; and (c) complements of any of the sequence of (a) or (b). In certain specific embodiments, such a polypeptide comprises at least a portion, or variant thereof, of a protein that includes an amino acid sequence selected from the group consisting of sequences recited in any one of SEQ ID NO: 112-114, 172, 176, 178, 327, 329, 331, 336, 339, 376-380, 383, 477-483, 496, 504, 505, 519, 520, 522, 525, 527, 532, 534, 537-550.

The present invention further provides polynucleotides that encode a polypeptide as described above, or a portion thereof (such as a portion encoding at least 15 amino acid residues of a prostate-specific protein), expression vectors comprising such polynucleotides and host cells transformed or transfected with such expression vectors.

Within other aspects, the present invention provides pharmaceutical compositions comprising a polypeptide or polynucleotide as described above and a physiologically acceptable carrier.

Within a related aspect of the present invention, vaccines for prophylactic or therapeutic use are provided. Such vaccines comprise a polypeptide or polynucleotide as described above and an immunostimulant.

The present invention further provides pharmaceutical compositions that comprise: (a) an antibody or antigen-binding fragment thereof that specifically binds to a prostate-specific protein; and (b) a physiologically acceptable carrier. In certain embodiments, the present invention provides monoclonal antibodies that specifically bind to an amino acid sequence selected from the group consisting of SEQ ID NO: 496, 504, 505, 509-517, 522 and 541-550, together with monoclonal antibodies comprising a complementarity determining region selected from the group consisting of SEQ ID NO: 502, 503 and 506-508.

Within further aspects, the present invention provides pharmaceutical compositions comprising: (a) an antigen presenting cell that expresses a polypeptide as described above and (b) a pharmaceutically acceptable carrier or excipient. Antigen presenting cells include dendritic cells, macrophages, monocytes, fibroblasts and B cells.

5 Within related aspects, vaccines are provided that comprise: (a) an antigen presenting cell that expresses a polypeptide as described above and (b) an immunostimulant.

The present invention further provides, in other aspects, fusion proteins that comprise at least one polypeptide as described above, as well as polynucleotides encoding such fusion proteins.

10 Within related aspects, pharmaceutical compositions comprising a fusion protein, or a polynucleotide encoding a fusion protein, in combination with a physiologically acceptable carrier are provided.

Vaccines are further provided, within other aspects, that comprise a fusion protein, or a polynucleotide encoding a fusion protein, in combination with an immunostimulant.

15 Within further aspects, the present invention provides methods for inhibiting the development of a cancer in a patient, comprising administering to a patient a pharmaceutical composition or vaccine as recited above.

The present invention further provides, within other aspects, methods for removing tumor cells from a biological sample, comprising contacting a biological sample with T cells that specifically react with a prostate-specific protein, wherein the step of contacting is performed under conditions and for a time sufficient to permit the removal of cells expressing the protein from the sample.

20 Within related aspects, methods are provided for inhibiting the development of a cancer in a patient, comprising administering to a patient a biological sample treated as described above.

25 Methods are further provided, within other aspects, for stimulating and/or expanding T cells specific for a prostate-specific protein, comprising contacting T cells with one or more of: (i) a polypeptide as described above; (ii) a polynucleotide encoding such a polypeptide; and/or (iii) an antigen presenting cell that expresses such a polypeptide; under conditions and for a time sufficient to permit the stimulation and/or expansion of T cells. Isolated T cell populations comprising T cells prepared as described above are also provided.

Within further aspects, the present invention provides methods for inhibiting the development of a cancer in a patient, comprising administering to a patient an effective amount of a T cell population as described above.

The present invention further provides methods for inhibiting the development of a cancer in a patient, comprising the steps of: (a) incubating CD4⁺ and/or CD8⁺ T cells isolated from a patient with one or more of: (i) a polypeptide comprising at least an immunogenic portion of a prostate-specific protein; (ii) a polynucleotide encoding such a polypeptide; and (iii) an antigen-presenting cell that expressed such a polypeptide; and (b) administering to the patient an effective amount of the proliferated T cells, and thereby inhibiting the development of a cancer in the patient.

10 Proliferated cells may, but need not, be cloned prior to administration to the patient.

Within further aspects, the present invention provides methods for determining the presence or absence of a cancer in a patient, comprising: (a) contacting a biological sample obtained from a patient with a binding agent that binds to a polypeptide as recited above; (b) detecting in the sample an amount of polypeptide that binds to the binding agent; and (c) comparing the amount of

15 polypeptide with a predetermined cut-off value, and therefrom determining the presence or absence of a cancer in the patient. Within preferred embodiments, the binding agent is an antibody, more preferably a monoclonal antibody. The cancer may be prostate cancer.

The present invention also provides, within other aspects, methods for monitoring the progression of a cancer in a patient. Such methods comprise the steps of: (a) contacting a biological sample obtained from a patient at a first point in time with a binding agent that binds to a polypeptide as recited above; (b) detecting in the sample an amount of polypeptide that binds to the binding agent; (c) repeating steps (a) and (b) using a biological sample obtained from the patient at a subsequent point in time; and (d) comparing the amount of polypeptide detected in step (c) with the amount detected in step (b) and therefrom monitoring the progression of the cancer in the

25 patient.

The present invention further provides, within other aspects, methods for determining the presence or absence of a cancer in a patient, comprising the steps of: (a) contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes a prostate-specific protein; (b) detecting in the sample a level of a polynucleotide, preferably mRNA, that hybridizes to the oligonucleotide; and (c) comparing the

30 level of polynucleotide that hybridizes to the oligonucleotide with a predetermined cut-off value, and therefrom determining the presence or absence of a cancer in the patient. Within certain

embodiments, the amount of mRNA is detected via polymerase chain reaction using, for example, at least one oligonucleotide primer that hybridizes to a polynucleotide encoding a polypeptide as recited above, or a complement of such a polynucleotide. Within other embodiments, the amount of mRNA is detected using a hybridization technique, employing an oligonucleotide probe that hybridizes to a polynucleotide that encodes a polypeptide as recited above, or a complement of such a polynucleotide.

In related aspects, methods are provided for monitoring the progression of a cancer in a patient, comprising the steps of: (a) contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes a prostate-specific protein; (b) detecting in the sample an amount of a polynucleotide that hybridizes to the oligonucleotide; (c) repeating steps (a) and (b) using a biological sample obtained from the patient at a subsequent point in time; and (d) comparing the amount of polynucleotide detected in step (c) with the amount detected in step (b) and therefrom monitoring the progression of the cancer in the patient.

Within further aspects, the present invention provides antibodies, such as monoclonal antibodies, that bind to a polypeptide as described above, as well as diagnostic kits comprising such antibodies. Diagnostic kits comprising one or more oligonucleotide probes or primers as described above are also provided.

These and other aspects of the present invention will become apparent upon reference to the following detailed description and attached drawings. All references disclosed herein are hereby incorporated by reference in their entirety as if each was incorporated individually.

BRIEF DESCRIPTION OF THE DRAWINGS AND SEQUENCE IDENTIFIERS

Figure 1 illustrates the ability of T cells to kill fibroblasts expressing the representative prostate-specific polypeptide P502S, as compared to control fibroblasts. The percentage lysis is shown as a series of effector:target ratios, as indicated.

Figures 2A and 2B illustrate the ability of T cells to recognize cells expressing the representative prostate-specific polypeptide P502S. In each case, the number of γ -interferon spots is shown for different numbers of responders. In Figure 2A, data is presented for fibroblasts pulsed with the P2S-12 peptide, as compared to fibroblasts pulsed with a control E75 peptide. In Figure 2B, data is presented for fibroblasts expressing P502S, as compared to fibroblasts expressing HER-2/neu.

Figure 3 represents a peptide competition binding assay showing that the P1S#10 peptide, derived from P501S, binds HLA-A2. Peptide P1S#10 inhibits HLA-A2 restricted presentation of fluM58 peptide to CTL clone D150M58 in TNF release bioassay. D150M58 CTL is specific for the HLA-A2 binding influenza matrix peptide fluM58.

5 Figure 4 illustrates the ability of T cell lines generated from P1S#10 immunized mice to specifically lyse P1S#10-pulsed Jurkat A2Kb targets and P501S-transduced Jurkat A2Kb targets, as compared to EGFP-transduced Jurkat A2Kb. The percent lysis is shown as a series of effector to target ratios, as indicated.

10 Figure 5 illustrates the ability of a T cell clone to recognize and specifically lyse Jurkat A2Kb cells expressing the representative prostate-specific polypeptide P501S, thereby demonstrating that the P1S#10 peptide may be a naturally processed epitope of the P501S polypeptide.

Figures 6A and 6B are graphs illustrating the specificity of a CD8⁺ cell line (3A-1) for a representative prostate-specific antigen (P501S). Figure 6A shows the results of a ⁵¹Cr release 15 assay. The percent specific lysis is shown as a series of effector:target ratios, as indicated. Figure 6B shows the production of interferon-gamma by 3A-1 cells stimulated with autologous B-LCL transduced with P501S, at varying effector:target ratios as indicated.

Figure 7 is a Western blot showing the expression of P501S in baculovirus.

Figure 8 illustrates the results of epitope mapping studies on P501S.

20 Figure 9 is a schematic representation of the P501S protein showing the location of transmembrane domains and predicted intracellular and extracellular domains.

Figure 10 is a genomic map showing the location of the prostate genes P775P, P704P, B305D, P712P and P774P within the Cat Eye Syndrome region of chromosome 22q11.2

25 Figure 11 shows the results of an ELISA assay of antibody specificity to P501S peptides.

SEQ ID NO: 1 is the determined cDNA sequence for F1-13

SEQ ID NO: 2 is the determined 3' cDNA sequence for F1-12

SEQ ID NO: 3 is the determined 5' cDNA sequence for F1-12

SEQ ID NO: 4 is the determined 3' cDNA sequence for F1-16

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SEQ ID NO: 6 is the determined 3' cDNA sequence for H1-9

SEQ ID NO: 7 is the determined 3' cDNA sequence for H1-4

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SEQ ID NO: 102 is the determined cDNA sequence for 1D-4288
SEQ ID NO: 103 is the determined cDNA sequence for 1D-4283

SEQ ID NO: 107 is the determined full length cDNA sequence for F1-12 (also referred to as P504S)

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SEQ ID NO: 111 is the determined full length cDNA sequence for N1-1862 (also referred to as

10 P503S)

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SEQ ID NO: 220 is the determined cDNA sequence for 8-h11rev
SEQ ID NO: 221 is the determined cDNA sequence for g-f12fwd
25 SEQ ID NO: 222 is the determined cDNA sequence for g-f3rev
SEQ ID NO: 223 is the determined cDNA sequence for P509S
SEQ ID NO: 224 is the determined cDNA sequence for P510S
SEQ ID NO: 225 is the determined cDNA sequence for P703DE5
SEQ ID NO: 226 is the determined cDNA sequence for 9-A11
30 SEQ ID NO: 227 is the determined cDNA sequence for 8-C6
SEQ ID NO: 228 is the determined cDNA sequence for 8-H7
SEQ ID NO: 229 is the determined cDNA sequence for JPTPN13

- SEQ ID NO: 230 is the determined cDNA sequence for JPTPN14
SEQ ID NO: 231 is the determined cDNA sequence for JPTPN23
SEQ ID NO: 232 is the determined cDNA sequence for JPTPN24
SEQ ID NO: 233 is the determined cDNA sequence for JPTPN25
5 SEQ ID NO: 234 is the determined cDNA sequence for JPTPN30
SEQ ID NO: 235 is the determined cDNA sequence for JPTPN34
SEQ ID NO: 236 is the determined cDNA sequence for PTPN35
SEQ ID NO: 237 is the determined cDNA sequence for JPTPN36
SEQ ID NO: 238 is the determined cDNA sequence for JPTPN38
10 SEQ ID NO: 239 is the determined cDNA sequence for JPTPN39
SEQ ID NO: 240 is the determined cDNA sequence for JPTPN40
SEQ ID NO: 241 is the determined cDNA sequence for JPTPN41
SEQ ID NO: 242 is the determined cDNA sequence for JPTPN42
SEQ ID NO: 243 is the determined cDNA sequence for JPTPN45
15 SEQ ID NO: 244 is the determined cDNA sequence for JPTPN46
SEQ ID NO: 245 is the determined cDNA sequence for JPTPN51
SEQ ID NO: 246 is the determined cDNA sequence for JPTPN56
SEQ ID NO: 247 is the determined cDNA sequence for PTPN64
SEQ ID NO: 248 is the determined cDNA sequence for JPTPN65
20 SEQ ID NO: 249 is the determined cDNA sequence for JPTPN67
SEQ ID NO: 250 is the determined cDNA sequence for JPTPN76
SEQ ID NO: 251 is the determined cDNA sequence for JPTPN84
SEQ ID NO: 252 is the determined cDNA sequence for JPTPN85
SEQ ID NO: 253 is the determined cDNA sequence for JPTPN86
25 SEQ ID NO: 254 is the determined cDNA sequence for JPTPN87
SEQ ID NO: 255 is the determined cDNA sequence for JPTPN88
SEQ ID NO: 256 is the determined cDNA sequence for JP1F1
SEQ ID NO: 257 is the determined cDNA sequence for JP1F2
SEQ ID NO: 258 is the determined cDNA sequence for JP1C2
30 SEQ ID NO: 259 is the determined cDNA sequence for JP1B1
SEQ ID NO: 260 is the determined cDNA sequence for JP1B2
SEQ ID NO: 261 is the determined cDNA sequence for JP1D3

- SEQ ID NO: 262 is the determined cDNA sequence for JP1A4
SEQ ID NO: 263 is the determined cDNA sequence for JP1F5
SEQ ID NO: 264 is the determined cDNA sequence for JP1E6
SEQ ID NO: 265 is the determined cDNA sequence for JP1D6
5 SEQ ID NO: 266 is the determined cDNA sequence for JP1B5
SEQ ID NO: 267 is the determined cDNA sequence for JP1A6
SEQ ID NO: 268 is the determined cDNA sequence for JP1E8
SEQ ID NO: 269 is the determined cDNA sequence for JP1D7
SEQ ID NO: 270 is the determined cDNA sequence for JP1D9
10 SEQ ID NO: 271 is the determined cDNA sequence for JP1C10
SEQ ID NO: 272 is the determined cDNA sequence for JP1A9
SEQ ID NO: 273 is the determined cDNA sequence for JP1F12
SEQ ID NO: 274 is the determined cDNA sequence for JP1E12
SEQ ID NO: 275 is the determined cDNA sequence for JP1D11
15 SEQ ID NO: 276 is the determined cDNA sequence for JP1C11
SEQ ID NO: 277 is the determined cDNA sequence for JP1C12
SEQ ID NO: 278 is the determined cDNA sequence for JP1B12
SEQ ID NO: 279 is the determined cDNA sequence for JP1A12
SEQ ID NO: 280 is the determined cDNA sequence for JP8G2
20 SEQ ID NO: 281 is the determined cDNA sequence for JP8H1
SEQ ID NO: 282 is the determined cDNA sequence for JP8H2
SEQ ID NO: 283 is the determined cDNA sequence for JP8A3
SEQ ID NO: 284 is the determined cDNA sequence for JP8A4
SEQ ID NO: 285 is the determined cDNA sequence for JP8C3
25 SEQ ID NO: 286 is the determined cDNA sequence for JP8G4
SEQ ID NO: 287 is the determined cDNA sequence for JP8B6
SEQ ID NO: 288 is the determined cDNA sequence for JP8D6
SEQ ID NO: 289 is the determined cDNA sequence for JP8F5
SEQ ID NO: 290 is the determined cDNA sequence for JP8A8
30 SEQ ID NO: 291 is the determined cDNA sequence for JP8C7
SEQ ID NO: 292 is the determined cDNA sequence for JP8D7
SEQ ID NO: 293 is the determined cDNA sequence for P8D8

- SEQ ID NO: 294 is the determined cDNA sequence for JP8E7
SEQ ID NO: 295 is the determined cDNA sequence for JP8F8
SEQ ID NO: 296 is the determined cDNA sequence for JP8G8
SEQ ID NO: 297 is the determined cDNA sequence for JP8B10
5 SEQ ID NO: 298 is the determined cDNA sequence for JP8C10
SEQ ID NO: 299 is the determined cDNA sequence for JP8E9
SEQ ID NO: 300 is the determined cDNA sequence for JP8E10
SEQ ID NO: 301 is the determined cDNA sequence for JP8F9
SEQ ID NO: 302 is the determined cDNA sequence for JP8H9
10 SEQ ID NO: 303 is the determined cDNA sequence for JP8C12
SEQ ID NO: 304 is the determined cDNA sequence for JP8E11
SEQ ID NO: 305 is the determined cDNA sequence for JP8E12
SEQ ID NO: 306 is the amino acid sequence for the peptide PS2#12
SEQ ID NO: 307 is the determined cDNA sequence for P711P
15 SEQ ID NO: 308 is the determined cDNA sequence for P712P
SEQ ID NO: 309 is the determined cDNA sequence for CLONE23
SEQ ID NO: 310 is the determined cDNA sequence for P774P
SEQ ID NO: 311 is the determined cDNA sequence for P775P
SEQ ID NO: 312 is the determined cDNA sequence for P715P
20 SEQ ID NO: 313 is the determined cDNA sequence for P710P
SEQ ID NO: 314 is the determined cDNA sequence for P767P
SEQ ID NO: 315 is the determined cDNA sequence for P768P
SEQ ID NO: 316-325 are the determined cDNA sequences of previously isolated genes
SEQ ID NO: 326 is the determined cDNA sequence for P703PDE5
25 SEQ ID NO: 327 is the predicted amino acid sequence for P703PDE5
SEQ ID NO: 328 is the determined cDNA sequence for P703P6.26
SEQ ID NO: 329 is the predicted amino acid sequence for P703P6.26
SEQ ID NO: 330 is the determined cDNA sequence for P703PX-23
SEQ ID NO: 331 is the predicted amino acid sequence for P703PX-23
30 SEQ ID NO: 332 is the determined full length cDNA sequence for P509S
SEQ ID NO: 333 is the determined extended cDNA sequence for P707P (also referred to as 11-C9)
SEQ ID NO: 334 is the determined cDNA sequence for P714P

- SEQ ID NO: 335 is the determined cDNA sequence for P705P (also referred to as 9-F3)
- SEQ ID NO: 336 is the predicted amino acid sequence for P705P
- SEQ ID NO: 337 is the amino acid sequence of the peptide P1S#10
- SEQ ID NO: 338 is the amino acid sequence of the peptide p5
- 5 SEQ ID NO: 339 is the predicted amino acid sequence of P509S
- SEQ ID NO: 340 is the determined cDNA sequence for P778P
- SEQ ID NO: 341 is the determined cDNA sequence for P786P
- SEQ ID NO: 342 is the determined cDNA sequence for P789P
- SEQ ID NO: 343 is the determined cDNA sequence for a clone showing homology to Homo
- 10 sapiens MM46 mRNA
- SEQ ID NO: 344 is the determined cDNA sequence for a clone showing homology to Homo sapiens TNF-alpha stimulated ABC protein (ABC50) mRNA
- SEQ ID NO: 345 is the determined cDNA sequence for a clone showing homology to Homo sapiens mRNA for E-cadherin
- 15 SEQ ID NO: 346 is the determined cDNA sequence for a clone showing homology to Human nuclear-encoded mitochondrial serine hydroxymethyltransferase (SHMT)
- SEQ ID NO: 347 is the determined cDNA sequence for a clone showing homology to Homo sapiens natural resistance-associated macrophage protein2 (NRAMP2)
- SEQ ID NO: 348 is the determined cDNA sequence for a clone showing homology to Homo
- 20 sapiens phosphoglucomutase-related protein (PGMRP)
- SEQ ID NO: 349 is the determined cDNA sequence for a clone showing homology to Human mRNA for proteasome subunit p40
- SEQ ID NO: 350 is the determined cDNA sequence for P777P
- SEQ ID NO: 351 is the determined cDNA sequence for P779P
- 25 SEQ ID NO: 352 is the determined cDNA sequence for P790P
- SEQ ID NO: 353 is the determined cDNA sequence for P784P
- SEQ ID NO: 354 is the determined cDNA sequence for P776P
- SEQ ID NO: 355 is the determined cDNA sequence for P780P
- SEQ ID NO: 356 is the determined cDNA sequence for P544S
- 30 SEQ ID NO: 357 is the determined cDNA sequence for P745S
- SEQ ID NO: 358 is the determined cDNA sequence for P782P
- SEQ ID NO: 359 is the determined cDNA sequence for P783P

- SEQ ID NO: 360 is the determined cDNA sequence for unknown 17984
- SEQ ID NO: 361 is the determined cDNA sequence for P787P
- SEQ ID NO: 362 is the determined cDNA sequence for P788P
- SEQ ID NO: 363 is the determined cDNA sequence for unknown 17994
- 5 SEQ ID NO: 364 is the determined cDNA sequence for P781P
- SEQ ID NO: 365 is the determined cDNA sequence for P785P
- SEQ ID NO: 366-375 are the determined cDNA sequences for splice variants of B305D.
- SEQ ID NO: 376 is the predicted amino acid sequence encoded by the sequence of SEQ ID NO: 366.
- 10 SEQ ID NO: 377 is the predicted amino acid sequence encoded by the sequence of SEQ ID NO: 372.
- SEQ ID NO: 378 is the predicted amino acid sequence encoded by the sequence of SEQ ID NO: 373.
- SEQ ID NO: 379 is the predicted amino acid sequence encoded by the sequence of SEQ ID NO: 15 374.
- SEQ ID NO: 380 is the predicted amino acid sequence encoded by the sequence of SEQ ID NO: 375.
- SEQ ID NO: 381 is the determined cDNA sequence for B716P.
- SEQ ID NO: 382 is the determined full-length cDNA sequence for P711P.
- 20 SEQ ID NO: 383 is the predicted amino acid sequence for P711P.
- SEQ ID NO: 384 is the cDNA sequence for P1000C.
- SEQ ID NO: 385 is the cDNA sequence for CGI-82.
- SEQ ID NO: 386 is the cDNA sequence for 23320.
- SEQ ID NO: 387 is the cDNA sequence for CGI-69.
- 25 SEQ ID NO: 388 is the cDNA sequence for L-iditol-2-dehydrogenase.
- SEQ ID NO: 389 is the cDNA sequence for 23379.
- SEQ ID NO: 390 is the cDNA sequence for 23381.
- SEQ ID NO: 391 is the cDNA sequence for KIAA0122.
- SEQ ID NO: 392 is the cDNA sequence for 23399.
- 30 SEQ ID NO: 393 is the cDNA sequence for a previously identified gene.
- SEQ ID NO: 394 is the cDNA sequence for HCLBP.
- SEQ ID NO: 395 is the cDNA sequence for transglutaminase.

- SEQ ID NO:396 is the cDNA sequence for a previously identified gene.
- SEQ ID NO:397 is the cDNA sequence for PAP.
- SEQ ID NO:398 is the cDNA sequence for Ets transcription factor PDEF.
- SEQ ID NO:399 is the cDNA sequence for hTGR.
- 5 SEQ ID NO:400 is the cDNA sequence for KIAA0295.
- SEQ ID NO:401 is the cDNA sequence for 22545.
- SEQ ID NO:402 is the cDNA sequence for 22547.
- SEQ ID NO:403 is the cDNA sequence for 22548.
- SEQ ID NO:404 is the cDNA sequence for 22550.
- 10 SEQ ID NO:405 is the cDNA sequence for 22551.
- SEQ ID NO:406 is the cDNA sequence for 22552.
- SEQ ID NO:407 is the cDNA sequence for 22553.
- SEQ ID NO:408 is the cDNA sequence for 22558.
- SEQ ID NO:409 is the cDNA sequence for 22562.
- 15 SEQ ID NO:410 is the cDNA sequence for 22565.
- SEQ ID NO:411 is the cDNA sequence for 22567.
- SEQ ID NO:412 is the cDNA sequence for 22568.
- SEQ ID NO:413 is the cDNA sequence for 22570.
- SEQ ID NO:414 is the cDNA sequence for 22571.
- 20 SEQ ID NO:415 is the cDNA sequence for 22572.
- SEQ ID NO:416 is the cDNA sequence for 22573.
- SEQ ID NO:417 is the cDNA sequence for 22573.
- SEQ ID NO:418 is the cDNA sequence for 22575.
- SEQ ID NO:419 is the cDNA sequence for 22580.
- 25 SEQ ID NO:420 is the cDNA sequence for 22581.
- SEQ ID NO:421 is the cDNA sequence for 22582.
- SEQ ID NO:422 is the cDNA sequence for 22583.
- SEQ ID NO:423 is the cDNA sequence for 22584.
- SEQ ID NO:424 is the cDNA sequence for 22585.
- 30 SEQ ID NO:425 is the cDNA sequence for 22586.
- SEQ ID NO:426 is the cDNA sequence for 22587.
- SEQ ID NO:427 is the cDNA sequence for 22588.

- SEQ ID NO:428 is the cDNA sequence for 22589.
SEQ ID NO:429 is the cDNA sequence for 22590.
SEQ ID NO:430 is the cDNA sequence for 22591.
SEQ ID NO:431 is the cDNA sequence for 22592.
5 SEQ ID NO:432 is the cDNA sequence for 22593.
SEQ ID NO:433 is the cDNA sequence for 22594.
SEQ ID NO:434 is the cDNA sequence for 22595.
SEQ ID NO:435 is the cDNA sequence for 22596.
SEQ ID NO:436 is the cDNA sequence for 22847.
10 SEQ ID NO:437 is the cDNA sequence for 22848.
SEQ ID NO:438 is the cDNA sequence for 22849.
SEQ ID NO:439 is the cDNA sequence for 22851.
SEQ ID NO:440 is the cDNA sequence for 22852.
SEQ ID NO:441 is the cDNA sequence for 22853.
15 SEQ ID NO:442 is the cDNA sequence for 22854.
SEQ ID NO:443 is the cDNA sequence for 22855.
SEQ ID NO:444 is the cDNA sequence for 22856.
SEQ ID NO:445 is the cDNA sequence for 22857.
SEQ ID NO:446 is the cDNA sequence for 23601.
20 SEQ ID NO:447 is the cDNA sequence for 23602.
SEQ ID NO:448 is the cDNA sequence for 23605.
SEQ ID NO:449 is the cDNA sequence for 23606.
SEQ ID NO:450 is the cDNA sequence for 23612.
SEQ ID NO:451 is the cDNA sequence for 23614.
25 SEQ ID NO:452 is the cDNA sequence for 23618.
SEQ ID NO:453 is the cDNA sequence for 23622.
SEQ ID NO:454 is the cDNA sequence for folate hydrolase.
SEQ ID NO:455 is the cDNA sequence for LIM protein.
SEQ ID NO:456 is the cDNA sequence for a known gene.
30 SEQ ID NO:457 is the cDNA sequence for a known gene.
SEQ ID NO:458 is the cDNA sequence for a previously identified gene.
SEQ ID NO:459 is the cDNA sequence for 23045.

SEQ ID NO:460 is the cDNA sequence for 23032.

SEQ ID NO:461 is the cDNA sequence for 23054.

SEQ ID NO:462-467 are cDNA sequences for known genes.

SEQ ID NO:468-471 are cDNA sequences for P710P.

5 SEQ ID NO:472 is a cDNA sequence for P1001C.

SEQ ID NO: 473 is the determined cDNA sequence for a first splice variant of P775P (referred to as 27505).

SEQ ID NO: 474 is the determined cDNA sequence for a second splice variant of P775P (referred to as 19947).

10 SEQ ID NO: 475 is the determined cDNA sequence for a third splice variant of P775P (referred to as 19941).

SEQ ID NO: 476 is the determined cDNA sequence for a fourth splice variant of P775P (referred to as 19937).

SEQ ID NO: 477 is a first predicted amino acid sequence encoded by the sequence of SEQ ID NO:
15 474.

SEQ ID NO: 478 is a second predicted amino acid sequence encoded by the sequence of SEQ ID NO: 474.

SEQ ID NO: 479 is the predicted amino acid sequence encoded by the sequence of SEQ ID NO: 475.

20 SEQ ID NO: 480 is a first predicted amino acid sequence encoded by the sequence of SEQ ID NO: 473.

SEQ ID NO: 481 is a second predicted amino acid sequence encoded by the sequence of SEQ ID NO: 473.

SEQ ID NO: 482 is a third predicted amino acid sequence encoded by the sequence of SEQ ID NO:
25 473.

SEQ ID NO: 483 is a fourth predicted amino acid sequence encoded by the sequence of SEQ ID NO: 473.

SEQ ID NO: 484 is the first 30 amino acids of the *M. tuberculosis* antigen Ra12.

SEQ ID NO: 485 is the PCR primer AW025.

30 SEQ ID NO: 486 is the PCR primer AW003.

SEQ ID NO: 487 is the PCR primer AW027.

SEQ ID NO: 488 is the PCR primer AW026.

SEQ ID NO: 489-501 are peptides employed in epitope mapping studies.

SEQ ID NO: 502 is the determined cDNA sequence of the complementarity determining region for the anti-P503S monoclonal antibody 20D4.

5 SEQ ID NO: 503 is the determined cDNA sequence of the complementarity determining region for the anti-P503S monoclonal antibody JA1.

SEQ ID NO: 504 & 505 are peptides employed in epitope mapping studies.

SEQ ID NO: 506 is the determined cDNA sequence of the complementarity determining region for the anti-P703P monoclonal antibody 8H2.

10 SEQ ID NO: 507 is the determined cDNA sequence of the complementarity determining region for the anti-P703P monoclonal antibody 7H8.

SEQ ID NO: 508 is the determined cDNA sequence of the complementarity determining region for the anti-P703P monoclonal antibody 2D4.

SEQ ID NO: 509-522 are peptides employed in epitope mapping studies.

15 SEQ ID NO: 523 is a mature form of P703P used to raise antibodies against P703P. SEQ ID NO: 524 is the putative full-length cDNA sequence of P703P.

SEQ ID NO: 525 is the predicted amino acid sequence encoded by SEQ ID NO: 524.

SEQ ID NO: 526 is the full-length cDNA sequence for P790P.

SEQ ID NO: 527 is the predicted amino acid sequence for P790P.

SEQ ID NO: 528 & 529 are PCR primers.

20 SEQ ID NO: 530 is the cDNA sequence of a splice variant of SEQ ID NO: 366.

SEQ ID NO: 531 is the cDNA sequence of the open reading frame of SEQ ID NO: 530.

SEQ ID NO: 532 is the predicted amino acid encoded by the sequence of SEQ ID NO: 531.

SEQ ID NO: 533 is the DNA sequence of a putative ORF of P775P.

SEQ ID NO: 534 is the predicted amino acid sequence encoded by SEQ ID NO: 533.

25 SEQ ID NO: 535 is a first full-length cDNA sequence for P510S.

SEQ ID NO: 536 is a second full-length cDNA sequence for P510S.

SEQ ID NO: 537 is the predicted amino acid sequence encoded by SEQ ID NO: 535.

SEQ ID NO: 538 is the predicted amino acid sequence encoded by SEQ ID NO: 536.

SEQ ID NO: 539 is the peptide P501S-370.

30 SEQ ID NO: 540 is the peptide P501S-376.

SEQ ID NO: 541-550 are epitopes of P501S.

SEQ ID NO: 551 corresponds to amino acids 543-553 of P501S.

DETAILED DESCRIPTION OF THE INVENTION

As noted above, the present invention is generally directed to compositions and methods for the therapy and diagnosis of cancer, such as prostate cancer. The compositions described herein may include prostate-specific polypeptides, polynucleotides encoding such polypeptides, binding agents such as antibodies, antigen presenting cells (APCs) and/or immune system cells (e.g., T cells). Polypeptides of the present invention generally comprise at least a portion (such as an immunogenic portion) of a prostate-specific protein or a variant thereof. A "prostate-specific protein" is a protein that is expressed in normal prostate and/or prostate tumor cells at a level that is at least two fold, and preferably at least five fold, greater than the level of expression in a non-prostate normal tissue, as determined using a representative assay provided herein. Certain prostate-specific proteins are proteins that react detectably (within an immunoassay, such as an ELISA or Western blot) with antisera of a patient afflicted with prostate cancer. Polynucleotides of the subject invention generally comprise a DNA or RNA sequence that encodes all or a portion of such a polypeptide, or that is complementary to such a sequence. Antibodies are generally immune system proteins, or antigen-binding fragments thereof, that are capable of binding to a polypeptide as described above. Antigen presenting cells include dendritic cells, macrophages, monocytes, fibroblasts and B-cells that express a polypeptide as described above. T cells that may be employed within such compositions are generally T cells that are specific for a polypeptide as described above.

The present invention is based on the discovery of human prostate-specific proteins. Sequences of polynucleotides encoding certain prostate-specific proteins, or portions thereof, are provided in SEQ ID NOs:1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382, 384-476, 524, 526, 530, 531, 533, 535 and 536. Sequences of polypeptides comprising at least a portion of a prostate-specific protein are provided in SEQ ID NOs:112-114, 172, 176, 178, 327, 329, 331, 336, 339, 376-380, 383, 477-483, 496, 504, 505, 519, 520, 522, 525, 527, 532, 534 and 537-550.

PROSTATE-SPECIFIC PROTEIN POLYNUCLEOTIDES

Any polynucleotide that encodes a prostate-specific protein or a portion or other variant thereof as described herein is encompassed by the present invention. Preferred

polynucleotides comprise at least 15 consecutive nucleotides, preferably at least 30 consecutive nucleotides and more preferably at least 45 consecutive nucleotides, that encode a portion of a prostate-specific protein. More preferably, a polynucleotide encodes an immunogenic portion of a prostate-specific protein. Polynucleotides complementary to any such sequences are also encompassed by the present invention. Polynucleotides may be single-stranded (coding or antisense) or double-stranded, and may be DNA (genomic, cDNA or synthetic) or RNA molecules. RNA molecules include HnRNA molecules, which contain introns and correspond to a DNA molecule in a one-to-one manner, and mRNA molecules, which do not contain introns. Additional coding or non-coding sequences may, but need not, be present within a polynucleotide of the present invention, and a polynucleotide may, but need not, be linked to other molecules and/or support materials.

Polynucleotides may comprise a native sequence (*i.e.*, an endogenous sequence that encodes a prostate-specific protein or a portion thereof) or may comprise a variant of such a sequence. Polynucleotide variants may contain one or more substitutions, additions, deletions and/or insertions such that the immunogenicity of the encoded polypeptide is not diminished, relative to a native protein. The effect on the immunogenicity of the encoded polypeptide may generally be assessed as described herein. Variants preferably exhibit at least about 70% identity, more preferably at least about 80% identity and most preferably at least about 90% identity to a polynucleotide sequence that encodes a native prostate-specific protein or a portion thereof. The term "variants" also encompasses homologous genes of xenogenic origin.

Two polynucleotide or polypeptide sequences are said to be "identical" if the sequence of nucleotides or amino acids in the two sequences is the same when aligned for maximum correspondence as described below. Comparisons between two sequences are typically performed by comparing the sequences over a comparison window to identify and compare local regions of sequence similarity. A "comparison window" as used herein, refers to a segment of at least about 20 contiguous positions, usually 30 to about 75, 40 to about 50, in which a sequence may be compared to a reference sequence of the same number of contiguous positions after the two sequences are optimally aligned.

Optimal alignment of sequences for comparison may be conducted using the Megalign program in the Lasergene suite of bioinformatics software (DNASTAR, Inc., Madison, WI), using default parameters. This program embodies several alignment schemes described in the following references: Dayhoff, M.O. (1978) A model of evolutionary change in proteins – Matrices

for detecting distant relationships. In Dayhoff, M.O. (ed.) *Atlas of Protein Sequence and Structure*, National Biomedical Research Foundation, Washington DC Vol. 5, Suppl. 3, pp. 345-358; Hein J. (1990) *Unified Approach to Alignment and Phylogenesis* pp. 626-645 *Methods in Enzymology* vol. 183, Academic Press, Inc., San Diego, CA; Higgins, D.G. and Sharp, P.M. (1989) *CABIOS* 5:151-153; Myers, E.W. and Muller W. (1988) *CABIOS* 4:11-17; Robinson, E.D. (1971) *Comb. Theor* 11:105; Santou, N. Nes, M. (1987) *Mol. Biol. Evol.* 4:406-425; Sneath, P.H.A. and Sokal, R.R. (1973) *Numerical Taxonomy – the Principles and Practice of Numerical Taxonomy*, Freeman Press, San Francisco, CA; Wilbur, W.J. and Lipman, D.J. (1983) *Proc. Natl. Acad., Sci. USA* 80:726-730.

Preferably, the "percentage of sequence identity" is determined by comparing two optimally aligned sequences over a window of comparison of at least 20 positions, wherein the portion of the polynucleotide or polypeptide sequence in the comparison window may comprise additions or deletions (*i.e.*, gaps) of 20 percent or less, usually 5 to 15 percent, or 10 to 12 percent, as compared to the reference sequences (which does not comprise additions or deletions) for optimal alignment of the two sequences. The percentage is calculated by determining the number of positions at which the identical nucleic acid bases or amino acid residue occurs in both sequences to yield the number of matched positions, dividing the number of matched positions by the total number of positions in the reference sequence (*i.e.*, the window size) and multiplying the results by 100 to yield the percentage of sequence identity.

Variants may also, or alternatively, be substantially homologous to a native gene, or a portion or complement thereof. Such polynucleotide variants are capable of hybridizing under moderately stringent conditions to a naturally occurring DNA sequence encoding a native prostate-specific protein (or a complementary sequence). Suitable moderately stringent conditions include prewashing in a solution of 5 X SSC, 0.5% SDS, 1.0 mM EDTA (pH 8.0); hybridizing at 50°C-65°C, 5 X SSC, overnight; followed by washing twice at 65°C for 20 minutes with each of 2X, 0.5X and 0.2X SSC containing 0.1% SDS.

It will be appreciated by those of ordinary skill in the art that, as a result of the degeneracy of the genetic code, there are many nucleotide sequences that encode a polypeptide as described herein. Some of these polynucleotides bear minimal homology to the nucleotide sequence of any native gene. Nonetheless, polynucleotides that vary due to differences in codon usage are specifically contemplated by the present invention. Further, alleles of the genes comprising the polynucleotide sequences provided herein are within the scope of the present invention. Alleles are endogenous genes that are altered as a result of one or more mutations, such

as deletions, additions and/or substitutions of nucleotides. The resulting mRNA and protein may, but need not, have an altered structure or function. Alleles may be identified using standard techniques (such as hybridization, amplification and/or database sequence comparison).

Polynucleotides may be prepared using any of a variety of techniques. For example, a polynucleotide may be identified, as described in more detail below, by screening a microarray of cDNAs for tumor-associated expression (*i.e.*, expression that is at least five fold greater in a prostate-specific than in normal tissue, as determined using a representative assay provided herein). Such screens may be performed using a Synteni microarray (Palo Alto, CA) according to the manufacturer's instructions (and essentially as described by Schena et al., *Proc. Natl. Acad. Sci. USA* 93:10614-10619, 1996 and Heller et al., *Proc. Natl. Acad. Sci. USA* 94:2150-2155, 1997). Alternatively, polypeptides may be amplified from cDNA prepared from cells expressing the proteins described herein, such as prostate-specific cells. Such polynucleotides may be amplified via polymerase chain reaction (PCR). For this approach, sequence-specific primers may be designed based on the sequences provided herein, and may be purchased or synthesized.

An amplified portion may be used to isolate a full length gene from a suitable library (*e.g.*, a prostate-specific cDNA library) using well known techniques. Within such techniques, a library (cDNA or genomic) is screened using one or more polynucleotide probes or primers suitable for amplification. Preferably, a library is size-selected to include larger molecules. Random primed libraries may also be preferred for identifying 5' and upstream regions of genes. Genomic libraries are preferred for obtaining introns and extending 5' sequences.

For hybridization techniques, a partial sequence may be labeled (*e.g.*, by nick-translation or end-labeling with ^{32}P) using well known techniques. A bacterial or bacteriophage library is then screened by hybridizing filters containing denatured bacterial colonies (or lawns containing phage plaques) with the labeled probe (*see* Sambrook et al., *Molecular Cloning: A Laboratory Manual*, Cold Spring Harbor Laboratories, Cold Spring Harbor, NY, 1989). Hybridizing colonies or plaques are selected and expanded, and the DNA is isolated for further analysis. cDNA clones may be analyzed to determine the amount of additional sequence by, for example, PCR using a primer from the partial sequence and a primer from the vector. Restriction maps and partial sequences may be generated to identify one or more overlapping clones. The complete sequence may then be determined using standard techniques, which may involve generating a series of deletion clones. The resulting overlapping sequences are then assembled into

a single contiguous sequence. A full length cDNA molecule can be generated by ligating suitable fragments; using well known techniques.

Alternatively, there are numerous amplification techniques for obtaining a full length coding sequence from a partial cDNA sequence. Within such techniques, amplification is generally performed via PCR. Any of a variety of commercially available kits may be used to perform the amplification step. Primers may be designed using, for example, software well known in the art. Primers are preferably 22-30 nucleotides in length; have a GC content of at least 50% and anneal to the target sequence at temperatures of about 68°C to 72°C. The amplified region may be sequenced as described above, and overlapping sequences assembled into a contiguous sequence.

One such amplification technique is inverse PCR (*see* Triglia et al., *Nucl. Acids Res.* 16:8186, 1988), which uses restriction enzymes to generate a fragment in the known region of the gene. The fragment is then circularized by intramolecular ligation and used as a template for PCR with divergent primers derived from the known region. Within an alternative approach, sequences adjacent to a partial sequence may be retrieved by amplification with a primer to a linker sequence and a primer specific to a known region. The amplified sequences are typically subjected to a second round of amplification with the same linker primer and a second primer specific to the known region. A variation on this procedure, which employs two primers that initiate extension in opposite directions from the known sequence, is described in WO 96/38591. Another such technique is known as "rapid amplification of cDNA ends" or RACE. This technique involves the use of an internal primer and an external primer, which hybridizes to a polyA region or vector sequence, to identify sequences that are 5' and 3' of a known sequence. Additional techniques include capture PCR (Lagerstrom et al., *PCR Methods Applic.* 1:111-19, 1991) and walking PCR (Parker et al., *Nucl. Acids. Res.* 19:3055-60, 1991). Other methods employing amplification may also be employed to obtain a full length cDNA sequence.

In certain instances, it is possible to obtain a full length cDNA sequence by analysis of sequences provided in an expressed sequence tag (EST) database, such as that available from GenBank. Searches for overlapping ESTs may generally be performed using well known programs (*e.g.*, NCBI BLAST searches), and such ESTs may be used to generate a contiguous full length sequence. Full length DNA sequences may also be obtained by analysis of genomic fragments.

Certain nucleic acid sequences of cDNA molecules encoding at least a portion of a prostate-specific protein are provided in SEQ ID NO:1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382, 384-476, 524, 526, 530, 531, 533, 535 and 536.

Isolation of these polynucleotides is described below. Each of these prostate-specific proteins was overexpressed in prostate tumor tissue.

Polynucleotide variants may generally be prepared by any method known in the art, including chemical synthesis by, for example, solid phase phosphoramidite chemical synthesis.

5 Modifications in a polynucleotide sequence may also be introduced using standard mutagenesis techniques, such as oligonucleotide-directed site-specific mutagenesis (*see* Adelman et al., *DNA* 2:183, 1983). Alternatively, RNA molecules may be generated by *in vitro* or *in vivo* transcription of DNA sequences encoding a prostate-specific protein, or portion thereof, provided that the DNA is incorporated into a vector with a suitable RNA polymerase promoter (such as T7 or SP6). Certain
10 portions may be used to prepare an encoded polypeptide, as described herein. In addition, or alternatively, a portion may be administered to a patient such that the encoded polypeptide is generated *in vivo* (e.g., by transfecting antigen-presenting cells, such as dendritic cells, with a cDNA construct encoding a prostate-specific polypeptide, and administering the transfected cells to the patient).

15 A portion of a sequence complementary to a coding sequence (*i.e.*, an antisense polynucleotide) may also be used as a probe or to modulate gene expression. cDNA constructs that can be transcribed into antisense RNA may also be introduced into cells of tissues to facilitate the production of antisense RNA. An antisense polynucleotide may be used, as described herein, to inhibit expression of a protein. Antisense technology can be used to control gene expression
20 through triple-helix formation, which compromises the ability of the double helix to open sufficiently for the binding of polymerases, transcription factors or regulatory molecules (*see* Gee et al., *In Huber and Carr, Molecular and Immunologic Approaches*, Futura Publishing Co. (Mt. Kisco, NY; 1994)). Alternatively, an antisense molecule may be designed to hybridize with a control region of a gene (e.g., promoter, enhancer or transcription initiation site), and block transcription of
25 the gene; or to block translation by inhibiting binding of a transcript to ribosomes.

A portion of a coding sequence, or of a complementary sequence, may also be designed as a probe or primer to detect gene expression. Probes may be labeled with a variety of reporter groups, such as radionuclides and enzymes, and are preferably at least 10 nucleotides in length, more preferably at least 20 nucleotides in length and still more preferably at least 30
30 nucleotides in length. Primers, as noted above, are preferably 22-30 nucleotides in length.

Any polynucleotide may be further modified to increase stability *in vivo*. Possible modifications include, but are not limited to, the addition of flanking sequences at the 5' and/or 3'

ends; the use of phosphorothioate or 2' O-methyl rather than phosphodiesterase linkages in the backbone; and/or the inclusion of nontraditional bases such as inosine, queosine and wybutosine, as well as acetyl- methyl-, thio- and other modified forms of adenine, cytidine, guanine, thymine and uridine.

5 Nucleotide sequences as described herein may be joined to a variety of other nucleotide sequences using established recombinant DNA techniques. For example, a polynucleotide may be cloned into any of a variety of cloning vectors, including plasmids, phagemids, lambda phage derivatives and cosmids. Vectors of particular interest include expression
10 vectors, replication vectors, probe generation vectors and sequencing vectors. In general, a vector will contain an origin of replication functional in at least one organism, convenient restriction endonuclease sites and one or more selectable markers. Other elements will depend upon the desired use, and will be apparent to those of ordinary skill in the art.

Within certain embodiments, polynucleotides may be formulated so as to permit entry into a cell of a mammal, and expression therein. Such formulations are particularly useful for
15 therapeutic purposes, as described below. Those of ordinary skill in the art will appreciate that there are many ways to achieve expression of a polynucleotide in a target cell, and any suitable method may be employed. For example, a polynucleotide may be incorporated into a viral vector such as, but not limited to, adenovirus, adeno-associated virus, retrovirus, or vaccinia or other pox virus (e.g., avian pox virus). The polynucleotides may also be administered as naked plasmid vectors.
20 Techniques for incorporating DNA into such vectors are well known to those of ordinary skill in the art. A retroviral vector may additionally transfer or incorporate a gene for a selectable marker (to aid in the identification or selection of transduced cells) and/or a targeting moiety, such as a gene that encodes a ligand for a receptor on a specific target cell, to render the vector target specific. Targeting may also be accomplished using an antibody, by methods known to those of ordinary
25 skill in the art.

Other formulations for therapeutic purposes include colloidal dispersion systems, such as macromolecule complexes, nanocapsules, microspheres, beads, and lipid-based systems including oil-in-water emulsions, micelles, mixed micelles, and liposomes. A preferred colloidal system for use as a delivery vehicle *in vitro* and *in vivo* is a liposome (i.e., an artificial membrane
30 vesicle). The preparation and use of such systems is well known in the art.

PROSTATE-SPECIFIC POLYPEPTIDES

Within the context of the present invention, polypeptides may comprise at least an immunogenic portion of a prostate-specific protein or a variant thereof, as described herein. As noted above, a "prostate-specific protein" is a protein that is expressed by normal prostate and/or prostate tumor cells. Proteins that are prostate-specific proteins also react detectably within an immunoassay (such as an ELISA) with antisera from a patient with prostate cancer. Polypeptides as described herein may be of any length. Additional sequences derived from the native protein and/or heterologous sequences may be present, and such sequences may (but need not) possess further immunogenic or antigenic properties.

An "immunogenic portion," as used herein is a portion of a protein that is recognized (*i.e.*, specifically bound) by a B-cell and/or T-cell surface antigen receptor. Such immunogenic portions generally comprise at least 5 amino acid residues, more preferably at least 10, and still more preferably at least 20 amino acid residues of a prostate-specific protein or a variant thereof. Certain preferred immunogenic portions include peptides in which an N-terminal leader sequence and/or transmembrane domain have been deleted. Other preferred immunogenic portions may contain a small N- and/or C-terminal deletion (*e.g.*, 1-30 amino acids, preferably 5-15 amino acids), relative to the mature protein.

Immunogenic portions may generally be identified using well known techniques, such as those summarized in Paul, *Fundamental Immunology*, 3rd ed., 243-247 (Raven Press, 1993) and references cited therein. Such techniques include screening polypeptides for the ability to react with antigen-specific antibodies, antisera and/or T-cell lines or clones. As used herein, antisera and antibodies are "antigen-specific" if they specifically bind to an antigen (*i.e.*, they react with the protein in an ELISA or other immunoassay, and do not react detectably with unrelated proteins). Such antisera and antibodies may be prepared as described herein, and using well known techniques. An immunogenic portion of a native prostate-specific protein is a portion that reacts with such antisera and/or T-cells at a level that is not substantially less than the reactivity of the full length polypeptide (*e.g.*, in an ELISA and/or T-cell reactivity assay). Such immunogenic portions may react within such assays at a level that is similar to or greater than the reactivity of the full length polypeptide. Such screens may generally be performed using methods well known to those of ordinary skill in the art, such as those described in Harlow and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988. For example, a polypeptide may be immobilized on a solid support and contacted with patient sera to allow binding of antibodies within the sera to the

immobilized polypeptide. Unbound sera may then be removed and bound antibodies detected using, for example, ^{125}I -labeled Protein A.

As noted above, a composition may comprise a variant of a native prostate-specific protein. A polypeptide "variant," as used herein, is a polypeptide that differs from a native prostate-specific protein in one or more substitutions, deletions, additions and/or insertions, such that the immunogenicity of the polypeptide is not substantially diminished. In other words, the ability of a variant to react with antigen-specific antisera may be enhanced or unchanged, relative to the native protein, or may be diminished by less than 50%, and preferably less than 20%, relative to the native protein. Such variants may generally be identified by modifying one of the above polypeptide sequences and evaluating the reactivity of the modified polypeptide with antigen-specific antibodies or antisera as described herein. Preferred variants include those in which one or more portions, such as an N-terminal leader sequence or transmembrane domain, have been removed. Other preferred variants include variants in which a small portion (*e.g.*, 1-30 amino acids, preferably 5-15 amino acids) has been removed from the N- and/or C-terminal of the mature protein. Polypeptide variants preferably exhibit at least about 70%, more preferably at least about 90% and most preferably at least about 95% identity (determined as described above) to the identified polypeptides.

Preferably, a variant contains conservative substitutions. A "conservative substitution" is one in which an amino acid is substituted for another amino acid that has similar properties, such that one skilled in the art of peptide chemistry would expect the secondary structure and hydrophobic nature of the polypeptide to be substantially unchanged. Amino acid substitutions may generally be made on the basis of similarity in polarity, charge, solubility, hydrophobicity, hydrophilicity and/or the amphipathic nature of the residues. For example, negatively charged amino acids include aspartic acid and glutamic acid; positively charged amino acids include lysine and arginine; and amino acids with uncharged polar head groups having similar hydrophilicity values include leucine, isoleucine and valine; glycine and alanine; asparagine and glutamine; and serine, threonine, phenylalanine and tyrosine. Other groups of amino acids that may represent conservative changes include: (1) ala, pro, gly, glu, asp, gln, asn, ser, thr; (2) cys, ser, tyr, thr; (3) val, ile, leu, met, ala, phe; (4) lys, arg, his; and (5) phe, tyr, trp, his. A variant may also, or alternatively, contain nonconservative changes. In a preferred embodiment, variant polypeptides differ from a native sequence by substitution, deletion or addition of five amino acids or fewer. Variants may also (or alternatively) be modified by, for example, the deletion or addition of amino

acids that have minimal influence on the immunogenicity, secondary structure and hydrophobic nature of the polypeptide.

As noted above, polypeptides may comprise a signal (or leader) sequence at the N-terminal end of the protein which co-translationally or post-translationally directs transfer of the protein. The polypeptide may also be conjugated to a linker or other sequence for ease of synthesis, purification or identification of the polypeptide (e.g., poly-His), or to enhance binding of the polypeptide to a solid support. For example, a polypeptide may be conjugated to an immunoglobulin Fc region.

Polypeptides may be prepared using any of a variety of well known techniques.

Recombinant polypeptides encoded by DNA sequences as described above may be readily prepared from the DNA sequences using any of a variety of expression vectors known to those of ordinary skill in the art. Expression may be achieved in any appropriate host cell that has been transformed or transfected with an expression vector containing a DNA molecule that encodes a recombinant polypeptide. Suitable host cells include prokaryotes, yeast, higher eukaryotic and plant cells. Preferably, the host cells employed are *E. coli*, yeast or a mammalian cell line such as COS or CHO. Supernatants from suitable host/vector systems which secrete recombinant protein or polypeptide into culture media may be first concentrated using a commercially available filter. Following concentration, the concentrate may be applied to a suitable purification matrix such as an affinity matrix or an ion exchange resin. Finally, one or more reverse phase HPLC steps can be employed to further purify a recombinant polypeptide.

Portions and other variants having fewer than about 100 amino acids, and generally fewer than about 50 amino acids, may also be generated by synthetic means, using techniques well known to those of ordinary skill in the art. For example, such polypeptides may be synthesized using any of the commercially available solid-phase techniques, such as the Merrifield solid-phase synthesis method, where amino acids are sequentially added to a growing amino acid chain. See Merrifield, *J. Am. Chem. Soc.* 85:2149-2146, 1963. Equipment for automated synthesis of polypeptides is commercially available from suppliers such as Perkin Elmer/Applied BioSystems Division (Foster City, CA), and may be operated according to the manufacturer's instructions.

Within certain specific embodiments, a polypeptide may be a fusion protein that comprises multiple polypeptides as described herein, or that comprises at least one polypeptide as described herein and an unrelated sequence, such as a known prostate-specific protein. A fusion partner may, for example, assist in providing T helper epitopes (an immunological fusion partner),

preferably T helper epitopes recognized by humans, or may assist in expressing the protein (an expression enhancer) at higher yields than the native recombinant protein. Certain preferred fusion partners are both immunological and expression enhancing fusion partners. Other fusion partners may be selected so as to increase the solubility of the protein or to enable the protein to be targeted to desired intracellular compartments. Still further fusion partners include affinity tags, which facilitate purification of the protein.

Fusion proteins may generally be prepared using standard techniques, including chemical conjugation. Preferably, a fusion protein is expressed as a recombinant protein, allowing the production of increased levels, relative to a non-fused protein, in an expression system. Briefly, DNA sequences encoding the polypeptide components may be assembled separately, and ligated into an appropriate expression vector. The 3' end of the DNA sequence encoding one polypeptide component is ligated, with or without a peptide linker, to the 5' end of a DNA sequence encoding the second polypeptide component so that the reading frames of the sequences are in phase. This permits translation into a single fusion protein that retains the biological activity of both component polypeptides.

A peptide linker sequence may be employed to separate the first and the second polypeptide components by a distance sufficient to ensure that each polypeptide folds into its secondary and tertiary structures. Such a peptide linker sequence is incorporated into the fusion protein using standard techniques well known in the art. Suitable peptide linker sequences may be chosen based on the following factors: (1) their ability to adopt a flexible extended conformation; (2) their inability to adopt a secondary structure that could interact with functional epitopes on the first and second polypeptides; and (3) the lack of hydrophobic or charged residues that might react with the polypeptide functional epitopes. Preferred peptide linker sequences contain Gly, Asn and Ser residues. Other near neutral amino acids, such as Thr and Ala may also be used in the linker sequence. Amino acid sequences which may be usefully employed as linkers include those disclosed in Maratea et al., *Gene* 40:39-46, 1985; Murphy et al., *Proc. Natl. Acad. Sci. USA* 83:8258-8262, 1986; U.S. Patent No. 4,935,233 and U.S. Patent No. 4,751,180. The linker sequence may generally be from 1 to about 50 amino acids in length. Linker sequences are not required when the first and second polypeptides have non-essential N-terminal amino acid regions that can be used to separate the functional domains and prevent steric interference.

The ligated DNA sequences are operably linked to suitable transcriptional or translational regulatory elements. The regulatory elements responsible for expression of DNA are

located only 5' to the DNA sequence encoding the first polypeptides. Similarly, stop codons required to end translation and transcription termination signals are only present 3' to the DNA sequence encoding the second polypeptide.

5 Fusion proteins are also provided that comprise a polypeptide of the present invention together with an unrelated immunogenic protein. Preferably the immunogenic protein is capable of eliciting a recall response. Examples of such proteins include tetanus, tuberculosis and hepatitis proteins (*see, for example, Stoute et al. New Engl. J. Med.*, 336:86-91, 1997).

Within preferred embodiments, an immunological fusion partner is derived from protein D, a surface protein of the gram-negative bacterium *Haemophilus influenza B* (WO 10 91/18926). Preferably, a protein D derivative comprises approximately the first third of the protein (*e.g.*, the first N-terminal 100-110 amino acids), and a protein D derivative may be lipidated. Within certain preferred embodiments, the first 109 residues of a Lipoprotein D fusion partner is included on the N-terminus to provide the polypeptide with additional exogenous T-cell epitopes and to increase the expression level in *E. coli* (thus functioning as an expression enhancer). The 15 lipid tail ensures optimal presentation of the antigen to antigen presenting cells. Other fusion partners include the non-structural protein from influenzae virus, NS1 (hemagglutinin). Typically, the N-terminal 81 amino acids are used, although different fragments that include T-helper epitopes may be used.

In another embodiment, the immunological fusion partner is the protein known as 20 LYTA, or a portion thereof (preferably a C-terminal portion). LYTA is derived from *Streptococcus pneumoniae*, which synthesizes an N-acetyl-L-alanine amidase known as amidase LYTA (encoded by the *LytA* gene; *Gene* 43:265-292, 1986). LYTA is an autolysin that specifically degrades certain bonds in the peptidoglycan backbone. The C-terminal domain of the LYTA protein is responsible for the affinity to the choline or to some choline analogues such as DEAE. This property has been 25 exploited for the development of *E. coli* C-LYTA expressing plasmids useful for expression of fusion proteins. Purification of hybrid proteins containing the C-LYTA fragment at the amino terminus has been described (*see Biotechnology* 10:795-798, 1992). Within a preferred embodiment, a repeat portion of LYTA may be incorporated into a fusion protein. A repeat portion is found in the C-terminal region starting at residue 178. A particularly preferred repeat portion 30 incorporates residues 188-305.

In general, polypeptides (including fusion proteins) and polynucleotides as described herein are isolated. An "isolated" polypeptide or polynucleotide is one that is removed from its

original environment. For example, a naturally-occurring protein is isolated if it is separated from some or all of the coexisting materials in the natural system. Preferably, such polypeptides are at least about 90% pure, more preferably at least about 95% pure and most preferably at least about 99% pure. A polynucleotide is considered to be isolated if, for example, it is cloned into a vector
5 that is not a part of the natural environment.

BINDING AGENTS

The present invention further provides agents, such as antibodies and antigen-binding fragments thereof, that specifically bind to a prostate-specific protein. As used herein, an
10 antibody, or antigen-binding fragment thereof, is said to "specifically bind" to a prostate-specific protein if it reacts at a detectable level (within, for example, an ELISA) with a prostate-specific protein, and does not react detectably with unrelated proteins under similar conditions. As used herein, "binding" refers to a noncovalent association between two separate molecules such that a complex is formed. The ability to bind may be evaluated by, for example, determining a binding
15 constant for the formation of the complex. The binding constant is the value obtained when the concentration of the complex is divided by the product of the component concentrations. In general, two compounds are said to "bind," in the context of the present invention, when the binding constant for complex formation exceeds about 10^3 L/mol. The binding constant may be determined using methods well known in the art.

20 Binding agents may be further capable of differentiating between patients with and without a cancer, such as prostate cancer, using the representative assays provided herein. In other words, antibodies or other binding agents that bind to a prostate-specific protein will generate a signal indicating the presence of a cancer in at least about 20% of patients with the disease, and will generate a negative signal indicating the absence of the disease in at least about 90% of individuals
25 without the cancer. To determine whether a binding agent satisfies this requirement, biological samples (e.g., blood, sera, urine and/or tumor biopsies) from patients with and without a cancer (as determined using standard clinical tests) may be assayed as described herein for the presence of polypeptides that bind to the binding agent. It will be apparent that a statistically significant number of samples with and without the disease should be assayed. Each binding agent should satisfy the
30 above criteria; however, those of ordinary skill in the art will recognize that binding agents may be used in combination to improve sensitivity.

Any agent that satisfies the above requirements may be a binding agent. For example, a binding agent may be a ribosome, with or without a peptide component, an RNA molecule or a polypeptide. In a preferred embodiment, a binding agent is an antibody or an antigen-binding fragment thereof. Most preferably, antibodies employed in the inventive methods have the ability to induce lysis of tumor cells by activation of complement and mediation of antibody-dependent cellular cytotoxicity (ADCC). Antibodies of different classes and subclasses differ in these properties. For example, mouse antibodies of the IgG2a and IgG3 classes are capable of activating serum complement upon binding to target cells which express the antigen against which the antibodies were raised, and can mediate ADCC.

Antibodies may be prepared by any of a variety of techniques known to those of ordinary skill in the art. See, e.g., Harlow and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988. In general, antibodies can be produced by cell culture techniques, including the generation of monoclonal antibodies as described herein, or via transfection of antibody genes into suitable bacterial or mammalian cell hosts, in order to allow for the production of recombinant antibodies. In one technique, an immunogen comprising the polypeptide is initially injected into any of a wide variety of mammals (e.g., mice, rats, rabbits, sheep or goats). In this step, the polypeptides of this invention may serve as the immunogen without modification. Alternatively, particularly for relatively short polypeptides, a superior immune response may be elicited if the polypeptide is joined to a carrier protein, such as bovine serum albumin or keyhole limpet hemocyanin. The immunogen is injected into the animal host, preferably according to a predetermined schedule incorporating one or more booster immunizations, and the animals are bled periodically. Polyclonal antibodies specific for the polypeptide may then be purified from such antisera by, for example, affinity chromatography using the polypeptide coupled to a suitable solid support.

Monoclonal antibodies specific for an antigenic polypeptide of interest may be prepared, for example, using the technique of Kohler and Milstein, *Eur. J. Immunol.* 6:511-519, 1976, and improvements thereto. Briefly, these methods involve the preparation of immortal cell lines capable of producing antibodies having the desired specificity (i.e., reactivity with the polypeptide of interest). Such cell lines may be produced, for example, from spleen cells obtained from an animal immunized as described above. The spleen cells are then immortalized by, for example, fusion with a myeloma cell fusion partner, preferably one that is syngeneic with the immunized animal. A variety of fusion techniques may be employed. For example, the spleen cells

and myeloma cells may be combined with a nonionic detergent for a few minutes and then plated at low density on a selective medium that supports the growth of hybrid cells, but not myeloma cells. A preferred selection technique uses HAT (hypoxanthine, aminopterin, thymidine) selection. After a sufficient time, usually about 1 to 2 weeks, colonies of hybrids are observed. Single colonies are
5 selected and their culture supernatants tested for binding activity against the polypeptide. Hybridomas having high reactivity and specificity are preferred.

Monoclonal antibodies may be isolated from the supernatants of growing hybridoma colonies. In addition, various techniques may be employed to enhance the yield, such as injection of the hybridoma cell line into the peritoneal cavity of a suitable vertebrate host, such as a mouse.
10 Monoclonal antibodies may then be harvested from the ascites fluid or the blood. Contaminants may be removed from the antibodies by conventional techniques, such as chromatography, gel filtration, precipitation, and extraction. The polypeptides of this invention may be used in the purification process in, for example, an affinity chromatography step.

The preparation of mouse and rabbit monoclonal antibodies that specifically bind to
15 polypeptides of the present invention is described in detail below. However, the antibodies of the present invention are not limited to those derived from mice. Human antibodies may also be employed in the inventive methods and may prove to be preferable. Such antibodies can be obtained using human hybridomas as described by Cote *et al.* (Monoclonal Antibodies and Cancer Therapy, Alan R. Lisa, p. 77, 1985). The present invention also encompasses antibodies made by
20 recombinant means such as chimeric antibodies, wherein the variable region and constant region are derived from different species, and CDR-grafted antibodies, wherein the complementarity determining region is derived from a different species, as described in US Patents 4,816,567 and 5,225,539. Chimeric antibodies may be prepared by splicing genes for a mouse antibody molecule having a desired antigen specificity together with genes for a human antibody molecule having the
25 desired biological activity, such as activation of human complement and mediation of ADCC (Morrison *et al. Proc. Natl. Acad. Sci. USA* 81:6851, 1984; Neuberger *et al. Nature* 312:604, 1984; Takeda *et al. Nature* 314:452, 1985).

Within certain embodiments, the use of antigen-binding fragments of antibodies may be preferred. Such fragments include Fab fragments, which may be prepared using standard
30 techniques. Briefly, immunoglobulins may be purified from rabbit serum by affinity chromatography on Protein A bead columns (Harlow and Lane, *Antibodies: A Laboratory Manual*,

Cold Spring Harbor Laboratory, 1988) and digested by papain to yield Fab and Fc fragments. The Fab and Fc fragments may be separated by affinity chromatography on protein A bead columns.

Monoclonal antibodies of the present invention may be coupled to one or more therapeutic agents. Suitable agents in this regard include radionuclides, differentiation inducers, drugs, toxins, and derivatives thereof. Preferred radionuclides include ^{90}Y , ^{123}I , ^{125}I , ^{131}I , ^{186}Re , ^{188}Re , ^{211}At , and ^{212}Bi . Preferred drugs include methotrexate, and pyrimidine and purine analogs. Preferred differentiation inducers include phorbol esters and butyric acid. Preferred toxins include ricin, abrin, diphtheria toxin, cholera toxin, gelonin, *Pseudomonas* exotoxin, *Shigella* toxin, and pokeweed antiviral protein.

A therapeutic agent may be coupled (*e.g.*, covalently bonded) to a suitable monoclonal antibody either directly or indirectly (*e.g.*, via a linker group). A direct reaction between an agent and an antibody is possible when each possesses a substituent capable of reacting with the other. For example, a nucleophilic group, such as an amino or sulfhydryl group, on one may be capable of reacting with a carbonyl-containing group, such as an anhydride or an acid halide, or with an alkyl group containing a good leaving group (*e.g.*, a halide) on the other.

Alternatively, it may be desirable to couple a therapeutic agent and an antibody via a linker group. A linker group can function as a spacer to distance an antibody from an agent in order to avoid interference with binding capabilities. A linker group can also serve to increase the chemical reactivity of a substituent on an agent or an antibody, and thus increase the coupling efficiency. An increase in chemical reactivity may also facilitate the use of agents, or functional groups on agents, which otherwise would not be possible.

It will be evident to those skilled in the art that a variety of bifunctional or polyfunctional reagents, both homo- and hetero-functional (such as those described in the catalog of the Pierce Chemical Co., Rockford, IL), may be employed as the linker group. Coupling may be effected, for example, through amino groups, carboxyl groups, sulfhydryl groups or oxidized carbohydrate residues. There are numerous references describing such methodology, *e.g.*, U.S. Patent No. 4,671,958, to Rodwell et al.

Where a therapeutic agent is more potent when free from the antibody portion of the immunoconjugates of the present invention, it may be desirable to use a linker group which is cleavable during or upon internalization into a cell. A number of different cleavable linker groups have been described. The mechanisms for the intracellular release of an agent from these linker groups include cleavage by reduction of a disulfide bond (*e.g.*, U.S. Patent No. 4,489,710, to

Spitler), by irradiation of a photolabile bond (*e.g.*, U.S. Patent No. 4,625,014, to Senter et al.), by hydrolysis of derivatized amino acid side chains (*e.g.*, U.S. Patent No. 4,638,045, to Kohn et al.), by serum complement-mediated hydrolysis (*e.g.*, U.S. Patent No. 4,671,958, to Rodwell et al.), and acid-catalyzed hydrolysis (*e.g.*, U.S. Patent No. 4,569,789, to Blattler et al.).

5 It may be desirable to couple more than one agent to an antibody. In one embodiment, multiple molecules of an agent are coupled to one antibody molecule. In another embodiment, more than one type of agent may be coupled to one antibody. Regardless of the particular embodiment, immunoconjugates with more than one agent may be prepared in a variety of ways. For example, more than one agent may be coupled directly to an antibody molecule, or
10 linkers which provide multiple sites for attachment can be used. Alternatively, a carrier can be used.

 A carrier may bear the agents in a variety of ways, including covalent bonding either directly or via a linker group. Suitable carriers include proteins such as albumins (*e.g.*, U.S. Patent No. 4,507,234, to Kato et al.), peptides and polysaccharides such as aminodextran (*e.g.*, U.S. Patent
15 No. 4,699,784, to Shih et al.). A carrier may also bear an agent by noncovalent bonding or by encapsulation, such as within a liposome vesicle (*e.g.*, U.S. Patent Nos. 4,429,008 and 4,873,088). Carriers specific for radionuclide agents include radiohalogenated small molecules and chelating compounds. For example, U.S. Patent No. 4,735,792 discloses representative radiohalogenated small molecules and their synthesis. A radionuclide chelate may be formed from chelating
20 compounds that include those containing nitrogen and sulfur atoms as the donor atoms for binding the metal, or metal oxide, radionuclide. For example, U.S. Patent No. 4,673,562, to Davison et al. discloses representative chelating compounds and their synthesis.

 A variety of routes of administration for the antibodies and immunoconjugates may be used. Typically, administration will be intravenous, intramuscular, subcutaneous or in the bed of
25 a resected tumor. It will be evident that the precise dose of the antibody/immunoconjugate will vary depending upon the antibody used, the antigen density on the tumor, and the rate of clearance of the antibody.

T CELLS

30 Immunotherapeutic compositions may also, or alternatively, comprise T cells specific for a prostate-specific protein. Such cells may generally be prepared *in vitro* or *ex vivo*, using standard procedures. For example, T cells may be isolated from bone marrow, peripheral

blood, or a fraction of bone marrow or peripheral blood of a patient, using a commercially available cell separation system, such as the ISOLEX™ system, available from Nexell Therapeutics Inc., Irvine, CA (see also U.S. Patent No. 5,240,856; U.S. Patent No. 5,215,926; WO 89/06280; WO 91/16116 and WO 92/07243). Alternatively, T cells may be derived from related or unrelated
5 humans, non-human mammals, cell lines or cultures.

T cells may be stimulated with a prostate-specific polypeptide, polynucleotide encoding a prostate-specific polypeptide and/or an antigen presenting cell (APC) that expresses such a polypeptide. Such stimulation is performed under conditions and for a time sufficient to permit the generation of T cells that are specific for the polypeptide. Preferably, a prostate-specific
10 polypeptide or polynucleotide is present within a delivery vehicle, such as a microsphere, to facilitate the generation of specific T cells.

T cells are considered to be specific for a prostate-specific polypeptide if the T cells specifically proliferate, secrete cytokines or kill target cells coated with the polypeptide or expressing a gene encoding the polypeptide. T cell specificity may be evaluated using any of a
15 variety of standard techniques. For example, within a chromium release assay or proliferation assay, a stimulation index of more than two fold increase in lysis and/or proliferation, compared to negative controls, indicates T cell specificity. Such assays may be performed, for example, as described in Chen et al., *Cancer Res.* 54:1065-1070, 1994. Alternatively, detection of the proliferation of T cells may be accomplished by a variety of known techniques. For example, T cell
20 proliferation can be detected by measuring an increased rate of DNA synthesis (e.g., by pulse-labeling cultures of T cells with tritiated thymidine and measuring the amount of tritiated thymidine incorporated into DNA). Contact with a prostate-specific polypeptide (100 ng/ml - 100 µg/ml, preferably 200 ng/ml - 25 µg/ml) for 3 - 7 days should result in at least a two fold increase in proliferation of the T cells. Contact as described above for 2-3 hours should result in activation of
25 the T cells, as measured using standard cytokine assays in which a two fold increase in the level of cytokine release (e.g., TNF or IFN-γ) is indicative of T cell activation (see Coligan et al., *Current Protocols in Immunology*, vol. 1, Wiley Interscience (Greene 1998)). T cells that have been activated in response to a prostate-specific polypeptide, polynucleotide or polypeptide-expressing APC may be CD4⁺ and/or CD8⁺. Prostate-specific protein-specific T cells may be expanded using
30 standard techniques. Within preferred embodiments, the T cells are derived from either a patient or a related, or unrelated, donor and are administered to the patient following stimulation and expansion.

For therapeutic purposes, CD4⁺ or CD8⁺ T cells that proliferate in response to a prostate-specific polypeptide, polynucleotide or APC can be expanded in number either *in vitro* or *in vivo*. Proliferation of such T cells *in vitro* may be accomplished in a variety of ways. For example, the T cells can be re-exposed to a prostate-specific polypeptide, or a short peptide corresponding to an immunogenic portion of such a polypeptide, with or without the addition of T cell growth factors, such as interleukin-2, and/or stimulator cells that synthesize a prostate-specific polypeptide. Alternatively, one or more T cells that proliferate in the presence of a prostate-specific protein can be expanded in number by cloning. Methods for cloning cells are well known in the art, and include limiting dilution.

PHARMACEUTICAL COMPOSITIONS AND VACCINES

Within certain aspects, polypeptides, polynucleotides, T cells and/or binding agents disclosed herein may be incorporated into pharmaceutical compositions or immunogenic compositions (*i.e.*, vaccines). Pharmaceutical compositions comprise one or more such compounds and a physiologically acceptable carrier. Vaccines may comprise one or more such compounds and an immunostimulant. An immunostimulant may be any substance that enhances an immune response to an exogenous antigen. Examples of immunostimulants include adjuvants, biodegradable microspheres (*e.g.*, polylactic galactide) and liposomes (into which the compound is incorporated; *see e.g.*, Fullerton, U.S. Patent No. 4,235,877). Vaccine preparation is generally described in, for example, M.F. Powell and M.J. Newman, eds., "Vaccine Design (the subunit and adjuvant approach)," Plenum Press (NY, 1995). Pharmaceutical compositions and vaccines within the scope of the present invention may also contain other compounds, which may be biologically active or inactive. For example, one or more immunogenic portions of other tumor antigens may be present, either incorporated into a fusion polypeptide or as a separate compound, within the composition or vaccine.

A pharmaceutical composition or vaccine may contain DNA encoding one or more of the polypeptides as described above, such that the polypeptide is generated *in situ*. As noted above, the DNA may be present within any of a variety of delivery systems known to those of ordinary skill in the art, including nucleic acid expression systems, bacteria and viral expression systems. Numerous gene delivery techniques are well known in the art, such as those described by Rolland, *Crit. Rev. Therap. Drug Carrier Systems* 15:143-198, 1998, and references cited therein. Appropriate nucleic acid expression systems contain the necessary DNA sequences for expression

in the patient (such as a suitable promoter and terminating signal). Bacterial delivery systems involve the administration of a bacterium (such as *Bacillus-Calmette-Guerrin*) that expresses an immunogenic portion of the polypeptide on its cell surface or secretes such an epitope. In a preferred embodiment, the DNA may be introduced using a viral expression system (e.g., vaccinia or other pox virus, retrovirus, or adenovirus), which may involve the use of a non-pathogenic (defective), replication competent virus. Suitable systems are disclosed, for example, in Fisher-Hoch et al., *Proc. Natl. Acad. Sci. USA* 86:317-321, 1989; Flexner et al., *Ann. N.Y. Acad. Sci.* 569:86-103, 1989; Flexner et al., *Vaccine* 8:17-21, 1990; U.S. Patent Nos. 4,603,112, 4,769,330, and 5,017,487; WO 89/01973; U.S. Patent No. 4,777,127; GB 2,200,651; EP 0,345,242; WO 91/02805; Berkner, *Biotechniques* 6:616-627, 1988; Rosenfeld et al., *Science* 252:431-434, 1991; Kolls et al., *Proc. Natl. Acad. Sci. USA* 91:215-219, 1994; Kass-Eisler et al., *Proc. Natl. Acad. Sci. USA* 90:11498-11502, 1993; Guzman et al., *Circulation* 88:2838-2848, 1993; and Guzman et al., *Cir. Res.* 73:1202-1207, 1993. Techniques for incorporating DNA into such expression systems are well known to those of ordinary skill in the art. The DNA may also be "naked," as described, for example, in Ulmer et al., *Science* 259:1745-1749, 1993 and reviewed by Cohen, *Science* 259:1691-1692, 1993. The uptake of naked DNA may be increased by coating the DNA onto biodegradable beads, which are efficiently transported into the cells.

While any suitable carrier known to those of ordinary skill in the art may be employed in the pharmaceutical compositions of this invention, the type of carrier will vary depending on the mode of administration. Compositions of the present invention may be formulated for any appropriate manner of administration, including for example, topical, oral, nasal, intravenous, intracranial, intraperitoneal, subcutaneous or intramuscular administration. For parenteral administration, such as subcutaneous injection, the carrier preferably comprises water, saline, alcohol, a fat, a wax or a buffer. For oral administration, any of the above carriers or a solid carrier, such as mannitol, lactose, starch, magnesium stearate, sodium saccharine, talcum, cellulose, glucose, sucrose, and magnesium carbonate, may be employed. Biodegradable microspheres (e.g., polylactate polyglycolate) may also be employed as carriers for the pharmaceutical compositions of this invention. Suitable biodegradable microspheres are disclosed, for example, in U.S. Patent Nos. 4,897,268 and 5,075,109.

Such compositions may also comprise buffers (e.g., neutral buffered saline or phosphate buffered saline), carbohydrates (e.g., glucose, mannose, sucrose or dextrans), mannitol, proteins, polypeptides or amino acids such as glycine, antioxidants, chelating agents such as EDTA

or glutathione, adjuvants (e.g., aluminum hydroxide) and/or preservatives. Alternatively, compositions of the present invention may be formulated as a lyophilizate. Compounds may also be encapsulated within liposomes using well known technology.

Any of a variety of immunostimulants may be employed in the vaccines of this invention. For example, an adjuvant may be included. Most adjuvants contain a substance designed to protect the antigen from rapid catabolism, such as aluminum hydroxide or mineral oil, and a stimulator of immune responses, such as lipid A, *Bordetella pertussis* or *Mycobacterium tuberculosis* derived proteins. Suitable adjuvants are commercially available as, for example, Freund's Incomplete Adjuvant and Complete Adjuvant (Difco Laboratories, Detroit, MI); Merck Adjuvant 65 (Merck and Company, Inc., Rahway, NJ); aluminum salts such as aluminum hydroxide gel (alum) or aluminum phosphate; salts of calcium, iron or zinc; an insoluble suspension of acylated tyrosine; acylated sugars; cationically or anionically derivatized polysaccharides; polyphosphazenes; biodegradable microspheres; monophosphoryl lipid A and quil A. Cytokines, such as GM-CSF or interleukin-2, -7, or -12, may also be used as adjuvants.

Within the vaccines provided herein, the adjuvant composition is preferably designed to induce an immune response predominantly of the Th1 type. High levels of Th1-type cytokines (e.g., IFN- γ , TNF α , IL-2 and IL-12) tend to favor the induction of cell mediated immune responses to an administered antigen. In contrast, high levels of Th2-type cytokines (e.g., IL-4, IL-5, IL-6 and IL-10) tend to favor the induction of humoral immune responses. Following application of a vaccine as provided herein, a patient will support an immune response that includes Th1- and Th2-type responses. Within a preferred embodiment, in which a response is predominantly Th1-type, the level of Th1-type cytokines will increase to a greater extent than the level of Th2-type cytokines. The levels of these cytokines may be readily assessed using standard assays. For a review of the families of cytokines, see Mosmann and Coffman, *Ann. Rev. Immunol.* 7:145-173, 1989.

Preferred adjuvants for use in eliciting a predominantly Th1-type response include, for example, a combination of monophosphoryl lipid A, preferably 3-de-O-acylated monophosphoryl lipid A (3D-MPL), together with an aluminum salt. MPL adjuvants are available from Ribi ImmunoChem Research Inc. (Hamilton, MT; see US Patent Nos. 4,436,727; 4,877,611; 4,866,034 and 4,912,094). CpG-containing oligonucleotides (in which the CpG dinucleotide is unmethylated) also induce a predominantly Th1 response. Such oligonucleotides are well known and are described, for example, in WO 96/02555. Another preferred adjuvant is a saponin, preferably QS21, which may be used alone or in combination with other adjuvants. For example,

an enhanced system involves the combination of a monophosphoryl lipid A and saponin derivative, such as the combination of QS21 and 3D-MPL as described in WO 94/00153, or a less reactogenic composition where the QS21 is quenched with cholesterol, as described in WO 96/33739. Other preferred formulations comprises an oil-in-water emulsion and tocopherol. A particularly potent
5 adjuvant formulation involving QS21, 3D-MPL and tocopherol in an oil-in-water emulsion is described in WO 95/17210. Any vaccine provided herein may be prepared using well known methods that result in a combination of antigen, immune response enhancer and a suitable carrier or excipient.

The compositions described herein may be administered as part of a sustained release
10 formulation (*i.e.*, a formulation such as a capsule, sponge or gel (composed of polysaccharides for example) that effects a slow release of compound following administration). Such formulations may generally be prepared using well known technology and administered by, for example, oral, rectal or subcutaneous implantation, or by implantation at the desired target site. Sustained-release formulations may contain a polypeptide, polynucleotide or antibody dispersed in a carrier matrix
15 and/or contained within a reservoir surrounded by a rate controlling membrane. Carriers for use within such formulations are biocompatible, and may also be biodegradable; preferably the formulation provides a relatively constant level of active component release. The amount of active compound contained within a sustained release formulation depends upon the site of implantation, the rate and expected duration of release and the nature of the condition to be treated or prevented.

Any of a variety of delivery vehicles may be employed within pharmaceutical
20 compositions and vaccines to facilitate production of an antigen-specific immune response that targets tumor cells. Delivery vehicles include antigen presenting cells (APCs), such as dendritic cells, macrophages, B cells, monocytes and other cells that may be engineered to be efficient APCs. Such cells may, but need not, be genetically modified to increase the capacity for presenting the
25 antigen, to improve activation and/or maintenance of the T cell response, to have anti-tumor effects *per se* and/or to be immunologically compatible with the receiver (*i.e.*, matched HLA haplotype). APCs may generally be isolated from any of a variety of biological fluids and organs, including tumor and peritumoral tissues, and may be autologous, allogeneic, syngeneic or xenogeneic cells.

Certain preferred embodiments of the present invention use dendritic cells or
30 progenitors thereof as antigen-presenting cells. Dendritic cells are highly potent APCs (Banchereau and Steinman, *Nature* 392:245-251, 1998) and have been shown to be effective as a physiological adjuvant for eliciting prophylactic or therapeutic antitumor immunity (*see* Timmerman and Levy,

Ann. Rev. Med. 50:507-529, 1999). In general, dendritic cells may be identified based on their typical shape (stellate *in situ*, with marked cytoplasmic processes (dendrites) visible *in vitro*), their ability to take-up, process and present antigens with high efficiency, and their ability to activate naïve T cell responses. Dendritic cells may, of course, be engineered to express specific cell-surface
5 receptors or ligands that are not commonly found on dendritic cells *in vivo* or *ex vivo*, and such modified dendritic cells are contemplated by the present invention. As an alternative to dendritic cells, secreted vesicles antigen-loaded dendritic cells (called exosomes) may be used within a vaccine (see Zitvogel et al., *Nature Med.* 4:594-600, 1998).

Dendritic cells and progenitors may be obtained from peripheral blood, bone
10 marrow, tumor-infiltrating cells, peritumoral tissues-infiltrating cells, lymph nodes, spleen, skin, umbilical cord blood or any other suitable tissue or fluid. For example, dendritic cells may be differentiated *ex vivo* by adding a combination of cytokines such as GM-CSF, IL-4, IL-13 and/or TNF α to cultures of monocytes harvested from peripheral blood. Alternatively, CD34 positive cells harvested from peripheral blood, umbilical cord blood or bone marrow may be differentiated into
15 dendritic cells by adding to the culture medium combinations of GM-CSF, IL-3, TNF α , CD40 ligand, LPS, flt3 ligand and/or other compound(s) that induce differentiation, maturation and proliferation of dendritic cells.

Dendritic cells are conveniently categorized as "immature" and "mature" cells, which allows a simple way to discriminate between two well characterized phenotypes. However, this
20 nomenclature should not be construed to exclude all possible intermediate stages of differentiation. Immature dendritic cells are characterized as APC with a high capacity for antigen uptake and processing, which correlates with the high expression of Fc γ receptor and mannose receptor. The mature phenotype is typically characterized by a lower expression of these markers, but a high expression of cell surface molecules responsible for T cell activation such as class I and class II
25 MHC, adhesion molecules (*e.g.*, CD54 and CD11) and costimulatory molecules (*e.g.*, CD40, CD80, CD86 and 4-1BB).

APCs may generally be transfected with a polynucleotide encoding a prostate-specific protein (or portion or other variant thereof) such that the prostate-specific polypeptide, or an immunogenic portion thereof, is expressed on the cell surface. Such transfection may take place *ex*
30 *vivo*, and a composition or vaccine comprising such transfected cells may then be used for therapeutic purposes, as described herein. Alternatively, a gene delivery vehicle that targets a dendritic or other antigen presenting cell may be administered to a patient, resulting in transfection

that occurs *in vivo*. *In vivo* and *ex vivo* transfection of dendritic cells, for example, may generally be performed using any methods known in the art, such as those described in WO 97/24447, or the gene gun approach described by Mahvi et al., *Immunology and cell Biology* 75:456-460, 1997. Antigen loading of dendritic cells may be achieved by incubating dendritic cells or progenitor cells
5 with the prostate-specific polypeptide, DNA (naked or within a plasmid vector) or RNA; or with antigen-expressing recombinant bacterium or viruses (*e.g.*, vaccinia, fowlpox, adenovirus or lentivirus vectors). Prior to loading, the polypeptide may be covalently conjugated to an immunological partner that provides T cell help (*e.g.*, a carrier molecule). Alternatively, a dendritic cell may be pulsed with a non-conjugated immunological partner, separately or in the presence of
10 the polypeptide.

CANCER THERAPY

In further aspects of the present invention, the compositions described herein may be used for immunotherapy of cancer, such as prostate cancer. Within such methods, pharmaceutical
15 compositions and vaccines are typically administered to a patient. As used herein, a "patient" refers to any warm-blooded animal, preferably a human. A patient may or may not be afflicted with cancer. Accordingly, the above pharmaceutical compositions and vaccines may be used to prevent the development of a cancer or to treat a patient afflicted with a cancer. A cancer may be diagnosed using criteria generally accepted in the art, including the presence of a malignant tumor.
20 Pharmaceutical compositions and vaccines may be administered either prior to or following surgical removal of primary tumors and/or treatment such as administration of radiotherapy or conventional chemotherapeutic drugs.

Within certain embodiments, immunotherapy may be active immunotherapy, in which treatment relies on the *in vivo* stimulation of the endogenous host immune system to react
25 against tumors with the administration of immune response-modifying agents (such as polypeptides and polynucleotides disclosed herein).

Within other embodiments, immunotherapy may be passive immunotherapy, in which treatment involves the delivery of agents with established tumor-immune reactivity (such as effector cells or antibodies) that can directly or indirectly mediate antitumor effects and does not
30 necessarily depend on an intact host immune system. Examples of effector cells include T cells as discussed above, T lymphocytes (such as CD8⁺ cytotoxic T lymphocytes and CD4⁺ T-helper tumor-infiltrating lymphocytes), killer cells (such as Natural Killer cells and lymphokine-activated killer

cells), B cells and antigen-presenting cells (such as dendritic cells and macrophages) expressing a polypeptide provided herein. T cell receptors and antibody receptors specific for the polypeptides recited herein may be cloned, expressed and transferred into other vectors or effector cells for adoptive immunotherapy. The polypeptides provided herein may also be used to generate
5 antibodies or anti-idiotypic antibodies (as described above and in U.S. Patent No. 4,918,164) for passive immunotherapy.

Effector cells may generally be obtained in sufficient quantities for adoptive immunotherapy by growth *in vitro*, as described herein. Culture conditions for expanding single antigen-specific effector cells to several billion in number with retention of antigen recognition *in vivo* are well known in the art. Such *in vitro* culture conditions typically use intermittent stimulation with antigen, often in the presence of cytokines (such as IL-2) and non-dividing feeder cells. As noted above, immunoreactive polypeptides as provided herein may be used to rapidly expand antigen-specific T cell cultures in order to generate a sufficient number of cells for immunotherapy. In particular, antigen-presenting cells, such as dendritic, macrophage, monocyte,
15 fibroblast or B cells, may be pulsed with immunoreactive polypeptides or transfected with one or more polynucleotides using standard techniques well known in the art. For example, antigen-presenting cells can be transfected with a polynucleotide having a promoter appropriate for increasing expression in a recombinant virus or other expression system. Cultured effector cells for use in therapy must be able to grow and distribute widely, and to survive long term *in vivo*. Studies
20 have shown that cultured effector cells can be induced to grow *in vivo* and to survive long term in substantial numbers by repeated stimulation with antigen supplemented with IL-2 (*see*, for example, Cheever et al., *Immunological Reviews* 157:177, 1997).

Alternatively, a vector expressing a polypeptide recited herein may be introduced into antigen presenting cells taken from a patient and clonally propagated *ex vivo* for transplant back
25 into the same patient. Transfected cells may be reintroduced into the patient using any means known in the art, preferably in sterile form by intravenous, intracavitary, intraperitoneal or intratumor administration.

Routes and frequency of administration of the therapeutic compositions disclosed herein, as well as dosage, will vary from individual to individual, and may be readily established
30 using standard techniques. In general, the pharmaceutical compositions and vaccines may be administered by injection (*e.g.*, intracutaneous, intramuscular, intravenous or subcutaneous), intranasally (*e.g.*, by aspiration) or orally. Preferably, between 1 and 10 doses may be administered

over a 52 week period. Preferably, 6 doses are administered, at intervals of 1 month, and booster vaccinations may be given periodically thereafter. Alternate protocols may be appropriate for individual patients. A suitable dose is an amount of a compound that, when administered as described above, is capable of promoting an anti-tumor immune response, and is at least 10-50%
5 above the basal (*i.e.*, untreated) level. Such response can be monitored by measuring the anti-tumor antibodies in a patient or by vaccine-dependent generation of cytolytic effector cells capable of killing the patient's tumor cells *in vitro*. Such vaccines should also be capable of causing an immune response that leads to an improved clinical outcome (*e.g.*, more frequent remissions, complete or partial or longer disease-free survival) in vaccinated patients as compared to non-
10 vaccinated patients. In general, for pharmaceutical compositions and vaccines comprising one or more polypeptides, the amount of each polypeptide present in a dose ranges from about 25 µg to 5 mg per kg of host. Suitable dose sizes will vary with the size of the patient, but will typically range from about 0.1 mL to about 5 mL.

In general, an appropriate dosage and treatment regimen provides the active
15 compound(s) in an amount sufficient to provide therapeutic and/or prophylactic benefit. Such a response can be monitored by establishing an improved clinical outcome (*e.g.*, more frequent remissions, complete or partial, or longer disease-free survival) in treated patients as compared to non-treated patients. Increases in preexisting immune responses to a prostate-specific protein generally correlate with an improved clinical outcome. Such immune responses may generally be
20 evaluated using standard proliferation, cytotoxicity or cytokine assays, which may be performed using samples obtained from a patient before and after treatment.

METHODS FOR DETECTING CANCER

In general, a cancer may be detected in a patient based on the presence of one or
25 more prostate-specific proteins and/or polynucleotides encoding such proteins in a biological sample (for example, blood, sera, urine and/or tumor biopsies) obtained from the patient. In other words, such proteins may be used as markers to indicate the presence or absence of a cancer such as prostate cancer. In addition, such proteins may be useful for the detection of other cancers. The binding agents provided herein generally permit detection of the level of antigen that binds to the
30 agent in the biological sample. Polynucleotide primers and probes may be used to detect the level of mRNA encoding a tumor protein, which is also indicative of the presence or absence of a cancer.

In general, a prostate tumor sequence should be present at a level that is at least three fold higher in tumor tissue than in normal tissue

There are a variety of assay formats known to those of ordinary skill in the art for using a binding agent to detect polypeptide markers in a sample. *See, e.g., Harlow and Lane, 5 Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988. In general, the presence or absence of a cancer in a patient may be determined by (a) contacting a biological sample obtained from a patient with a binding agent; (b) detecting in the sample a level of polypeptide that binds to the binding agent; and (c) comparing the level of polypeptide with a predetermined cut-off value.

In a preferred embodiment, the assay involves the use of binding agent immobilized
10 on a solid support to bind to and remove the polypeptide from the remainder of the sample. The bound polypeptide may then be detected using a detection reagent that contains a reporter group and specifically binds to the binding agent/polypeptide complex. Such detection reagents may comprise, for example, a binding agent that specifically binds to the polypeptide or an antibody or other agent that specifically binds to the binding agent, such as an anti-immunoglobulin, protein G,
15 protein A or a lectin. Alternatively, a competitive assay may be utilized, in which a polypeptide is labeled with a reporter group and allowed to bind to the immobilized binding agent after incubation of the binding agent with the sample. The extent to which components of the sample inhibit the binding of the labeled polypeptide to the binding agent is indicative of the reactivity of the sample with the immobilized binding agent. Suitable polypeptides for use within such assays include full
20 length prostate-specific proteins and portions thereof to which the binding agent binds, as described above.

The solid support may be any material known to those of ordinary skill in the art to which the protein may be attached. For example, the solid support may be a test well in a microtiter plate or a nitrocellulose or other suitable membrane. Alternatively, the support may be a bead or
25 disc, such as glass, fiberglass, latex or a plastic material such as polystyrene or polyvinylchloride. The support may also be a magnetic particle or a fiber optic sensor, such as those disclosed, for example, in U.S. Patent No. 5,359,681. The binding agent may be immobilized on the solid support using a variety of techniques known to those of skill in the art, which are amply described in the patent and scientific literature. In the context of the present invention, the term "immobilization"
30 refers to both noncovalent association, such as adsorption, and covalent attachment (which may be a direct linkage between the agent and functional groups on the support or may be a linkage by way of a cross-linking agent). Immobilization by adsorption to a well in a microtiter plate or to a

membrane is preferred. In such cases, adsorption may be achieved by contacting the binding agent, in a suitable buffer, with the solid support for a suitable amount of time. The contact time varies with temperature, but is typically between about 1 hour and about 1 day. In general, contacting a well of a plastic microtiter plate (such as polystyrene or polyvinylchloride) with an amount of binding agent ranging from about 10 ng to about 10 μ g, and preferably about 100 ng to about 1 μ g, is sufficient to immobilize an adequate amount of binding agent.

Covalent attachment of binding agent to a solid support may generally be achieved by first reacting the support with a bifunctional reagent that will react with both the support and a functional group, such as a hydroxyl or amino group, on the binding agent. For example, the binding agent may be covalently attached to supports having an appropriate polymer coating using benzoquinone or by condensation of an aldehyde group on the support with an amine and an active hydrogen on the binding partner (*see, e.g.*, Pierce Immunotechnology Catalog and Handbook, 1991, at A12-A13).

In certain embodiments, the assay is a two-antibody sandwich assay. This assay may be performed by first contacting an antibody that has been immobilized on a solid support, commonly the well of a microtiter plate, with the sample, such that polypeptides within the sample are allowed to bind to the immobilized antibody. Unbound sample is then removed from the immobilized polypeptide-antibody complexes and a detection reagent (preferably a second antibody capable of binding to a different site on the polypeptide) containing a reporter group is added. The amount of detection reagent that remains bound to the solid support is then determined using a method appropriate for the specific reporter group.

More specifically, once the antibody is immobilized on the support as described above, the remaining protein binding sites on the support are typically blocked. Any suitable blocking agent known to those of ordinary skill in the art, such as bovine serum albumin or Tween 20TM (Sigma Chemical Co., St. Louis, MO). The immobilized antibody is then incubated with the sample, and polypeptide is allowed to bind to the antibody. The sample may be diluted with a suitable diluent, such as phosphate-buffered saline (PBS) prior to incubation. In general, an appropriate contact time (*i.e.*, incubation time) is a period of time that is sufficient to detect the presence of polypeptide within a sample obtained from an individual with prostate cancer. Preferably, the contact time is sufficient to achieve a level of binding that is at least about 95% of that achieved at equilibrium between bound and unbound polypeptide. Those of ordinary skill in the art will recognize that the time necessary to achieve equilibrium may be readily determined by

assaying the level of binding that occurs over a period of time. At room temperature, an incubation time of about 30 minutes is generally sufficient.

Unbound sample may then be removed by washing the solid support with an appropriate buffer, such as PBS containing 0.1% Tween 20™. The second antibody, which contains
5 a reporter group, may then be added to the solid support. Preferred reporter groups include those groups recited above.

The detection reagent is then incubated with the immobilized antibody-polypeptide complex for an amount of time sufficient to detect the bound polypeptide. An appropriate amount of time may generally be determined by assaying the level of binding that occurs over a period of
10 time. Unbound detection reagent is then removed and bound detection reagent is detected using the reporter group. The method employed for detecting the reporter group depends upon the nature of the reporter group. For radioactive groups, scintillation counting or autoradiographic methods are generally appropriate. Spectroscopic methods may be used to detect dyes, luminescent groups and fluorescent groups. Biotin may be detected using avidin, coupled to a different reporter group
15 (commonly a radioactive or fluorescent group or an enzyme). Enzyme reporter groups may generally be detected by the addition of substrate (generally for a specific period of time), followed by spectroscopic or other analysis of the reaction products.

To determine the presence or absence of a cancer, such as prostate cancer, the signal detected from the reporter group that remains bound to the solid support is generally compared to a
20 signal that corresponds to a predetermined cut-off value. In one preferred embodiment, the cut-off value for the detection of a cancer is the average mean signal obtained when the immobilized antibody is incubated with samples from patients without the cancer. In general, a sample generating a signal that is three standard deviations above the predetermined cut-off value is considered positive for the cancer. In an alternate preferred embodiment, the cut-off value is
25 determined using a Receiver Operator Curve, according to the method of Sackett et al., *Clinical Epidemiology: A Basic Science for Clinical Medicine*, Little Brown and Co., 1985, p. 106-7. Briefly, in this embodiment, the cut-off value may be determined from a plot of pairs of true positive rates (i.e., sensitivity) and false positive rates (100%-specificity) that correspond to each possible cut-off value for the diagnostic test result. The cut-off value on the plot that is the closest
30 to the upper left-hand corner (i.e., the value that encloses the largest area) is the most accurate cut-off value, and a sample generating a signal that is higher than the cut-off value determined by this method may be considered positive. Alternatively, the cut-off value may be shifted to the left along

the plot, to minimize the false positive rate, or to the right, to minimize the false negative rate. In general, a sample generating a signal that is higher than the cut-off value determined by this method is considered positive for a cancer.

In a related embodiment, the assay is performed in a flow-through or strip test
5 format, wherein the binding agent is immobilized on a membrane, such as nitrocellulose. In the flow-through test, polypeptides within the sample bind to the immobilized binding agent as the sample passes through the membrane. A second, labeled binding agent then binds to the binding agent-polypeptide complex as a solution containing the second binding agent flows through the membrane. The detection of bound second binding agent may then be performed as described
10 above. In the strip test format, one end of the membrane to which binding agent is bound is immersed in a solution containing the sample. The sample migrates along the membrane through a region containing second binding agent and to the area of immobilized binding agent. Concentration of second binding agent at the area of immobilized antibody indicates the presence of a cancer. Typically, the concentration of second binding agent at that site generates a pattern, such
15 as a line, that can be read visually. The absence of such a pattern indicates a negative result. In general, the amount of binding agent immobilized on the membrane is selected to generate a visually discernible pattern when the biological sample contains a level of polypeptide that would be sufficient to generate a positive signal in the two-antibody sandwich assay, in the format discussed above. Preferred binding agents for use in such assays are antibodies and antigen-binding
20 fragments thereof. Preferably, the amount of antibody immobilized on the membrane ranges from about 25 ng to about 1 µg, and more preferably from about 50 ng to about 500 ng. Such tests can typically be performed with a very small amount of biological sample.

Of course, numerous other assay protocols exist that are suitable for use with the proteins or binding agents of the present invention. The above descriptions are intended to be
25 exemplary only. For example, it will be apparent to those of ordinary skill in the art that the above protocols may be readily modified to use prostate-specific polypeptides to detect antibodies that bind to such polypeptides in a biological sample. The detection of such prostate-specific protein specific antibodies may correlate with the presence of a cancer.

A cancer may also, or alternatively, be detected based on the presence of T cells that
30 specifically react with a prostate-specific protein in a biological sample. Within certain methods, a biological sample comprising CD4⁺ and/or CD8⁺ T cells isolated from a patient is incubated with a prostate-specific polypeptide, a polynucleotide encoding such a polypeptide and/or an APC that

expresses at least an immunogenic portion of such a polypeptide, and the presence or absence of specific activation of the T cells is detected. Suitable biological samples include, but are not limited to, isolated T cells. For example, T cells may be isolated from a patient by routine techniques (such as by Ficoll/Hypaque density gradient centrifugation of peripheral blood lymphocytes). T cells may
5 be incubated *in vitro* for 2-9 days (typically 4 days) at 37°C with prostate-specific polypeptide (*e.g.*, 5 - 25 µg/ml). It may be desirable to incubate another aliquot of a T cell sample in the absence of prostate-specific polypeptide to serve as a control. For CD4⁺ T cells, activation is preferably detected by evaluating proliferation of the T cells. For CD8⁺ T cells, activation is preferably detected by evaluating cytolytic activity. A level of proliferation that is at least two fold greater
10 and/or a level of cytolytic activity that is at least 20% greater than in disease-free patients indicates the presence of a cancer in the patient.

As noted above, a cancer may also, or alternatively, be detected based on the level of mRNA encoding a prostate-specific protein in a biological sample. For example, at least two oligonucleotide primers may be employed in a polymerase chain reaction (PCR) based assay to
15 amplify a portion of a prostate-specific cDNA derived from a biological sample, wherein at least one of the oligonucleotide primers is specific for (*i.e.*, hybridizes to) a polynucleotide encoding the prostate-specific protein. The amplified cDNA is then separated and detected using techniques well known in the art, such as gel electrophoresis. Similarly, oligonucleotide probes that specifically hybridize to a polynucleotide encoding a prostate-specific protein may be used in a hybridization
20 assay to detect the presence of polynucleotide encoding the protein in a biological sample.

To permit hybridization under assay conditions, oligonucleotide primers and probes should comprise an oligonucleotide sequence that has at least about 60%, preferably at least about 75% and more preferably at least about 90%, identity to a portion of a polynucleotide encoding a prostate-specific protein that is at least 10 nucleotides, and preferably at least 20 nucleotides, in
25 length. Preferably, oligonucleotide primers and/or probes will hybridize to a polynucleotide encoding a polypeptide disclosed herein under moderately stringent conditions, as defined above. Oligonucleotide primers and/or probes which may be usefully employed in the diagnostic methods described herein preferably are at least 10-40 nucleotides in length. In a preferred embodiment, the oligonucleotide primers comprise at least 10 contiguous nucleotides, more preferably at least 15
30 contiguous nucleotides, of a DNA molecule having a sequence recited in SEQ ID NO: 1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382, 384-476, 524, 526, 530, 531, 533, 535 and 536. Techniques for both PCR based assays and hybridization assays

are well known in the art (*see*, for example, Mullis et al., *Cold Spring Harbor Symp. Quant. Biol.*, 51:263, 1987; Erlich ed., *PCR Technology*, Stockton Press, NY, 1989).

One preferred assay employs RT-PCR, in which PCR is applied in conjunction with reverse transcription. Typically, RNA is extracted from a biological sample, such as biopsy tissue, and is reverse transcribed to produce cDNA molecules. PCR amplification using at least one specific primer generates a cDNA molecule, which may be separated and visualized using, for example, gel electrophoresis. Amplification may be performed on biological samples taken from a test patient and from an individual who is not afflicted with a cancer. The amplification reaction may be performed on several dilutions of cDNA spanning two orders of magnitude. A two-fold or greater increase in expression in several dilutions of the test patient sample as compared to the same dilutions of the non-cancerous sample is typically considered positive.

In another embodiment, the disclosed compositions may be used as markers for the progression of cancer. In this embodiment, assays as described above for the diagnosis of a cancer may be performed over time, and the change in the level of reactive polypeptide(s) or polynucleotide evaluated. For example, the assays may be performed every 24-72 hours for a period of 6 months to 1 year, and thereafter performed as needed. In general, a cancer is progressing in those patients in whom the level of polypeptide or polynucleotide detected increases over time. In contrast, the cancer is not progressing when the level of reactive polypeptide or polynucleotide either remains constant or decreases with time.

Certain *in vivo* diagnostic assays may be performed directly on a tumor. One such assay involves contacting tumor cells with a binding agent. The bound binding agent may then be detected directly or indirectly via a reporter group. Such binding agents may also be used in histological applications. Alternatively, polynucleotide probes may be used within such applications.

As noted above, to improve sensitivity, multiple prostate-specific protein markers may be assayed within a given sample. It will be apparent that binding agents specific for different proteins provided herein may be combined within a single assay. Further, multiple primers or probes may be used concurrently. The selection of protein markers may be based on routine experiments to determine combinations that results in optimal sensitivity. In addition, or alternatively, assays for proteins provided herein may be combined with assays for other known tumor antigens.

DIAGNOSTIC KITS

The present invention further provides kits for use within any of the above diagnostic methods. Such kits typically comprise two or more components necessary for performing a diagnostic assay. Components may be compounds, reagents, containers and/or equipment. For
5 example, one container within a kit may contain a monoclonal antibody or fragment thereof that specifically binds to a prostate-specific protein. Such antibodies or fragments may be provided attached to a support material, as described above. One or more additional containers may enclose elements, such as reagents or buffers, to be used in the assay. Such kits may also, or alternatively, contain a detection reagent as described above that contains a reporter group suitable for direct or
10 indirect detection of antibody binding.

Alternatively, a kit may be designed to detect the level of mRNA encoding a prostate-specific protein in a biological sample. Such kits generally comprise at least one oligonucleotide probe or primer, as described above, that hybridizes to a polynucleotide encoding a prostate-specific protein. Such an oligonucleotide may be used, for example, within a PCR or
15 hybridization assay. Additional components that may be present within such kits include a second oligonucleotide and/or a diagnostic reagent or container to facilitate the detection of a polynucleotide encoding a prostate-specific protein.

The following Examples are offered by way of illustration and not by way of limitation.

EXAMPLES

EXAMPLE 1

5 ISOLATION AND CHARACTERIZATION OF PROSTATE-SPECIFIC POLYPEPTIDES

This Example describes the isolation of certain prostate-specific polypeptides from a prostate tumor cDNA library.

A human prostate tumor cDNA expression library was constructed from prostate
10 tumor poly A⁺ RNA using a Superscript Plasmid System for cDNA Synthesis and Plasmid Cloning kit (BRL Life Technologies, Gaithersburg, MD 20897) following the manufacturer's protocol. Specifically, prostate tumor tissues were homogenized with polytron (Kinematica, Switzerland) and total RNA was extracted using Trizol reagent (BRL Life Technologies) as directed by the manufacturer. The poly A⁺ RNA was then purified using a Qiagen oligotex spin column mRNA
15 purification kit (Qiagen, Santa Clarita, CA 91355) according to the manufacturer's protocol. First-strand cDNA was synthesized using the NotI/Oligo-dT18 primer. Double-stranded cDNA was synthesized, ligated with EcoRI/BAXI adaptors (Invitrogen, San Diego, CA) and digested with NotI. Following size fractionation with Chroma Spin-1000 columns (Clontech, Palo Alto, CA), the cDNA was ligated into the EcoRI/NotI site of pCDNA3.1 (Invitrogen) and transformed into
20 ElectroMax *E. coli* DH10B cells (BRL Life Technologies) by electroporation.

Using the same procedure, a normal human pancreas cDNA expression library was prepared from a pool of six tissue specimens (Clontech). The cDNA libraries were characterized by determining the number of independent colonies, the percentage of clones that carried insert, the average insert size and by sequence analysis. The prostate tumor library contained 1.64×10^7
25 independent colonies, with 70% of clones having an insert and the average insert size being 1745 base pairs. The normal pancreas cDNA library contained 3.3×10^6 independent colonies, with 69% of clones having inserts and the average insert size being 1120 base pairs. For both libraries, sequence analysis showed that the majority of clones had a full length cDNA sequence and were synthesized from mRNA, with minimal rRNA and mitochondrial DNA contamination.

30 cDNA library subtraction was performed using the above prostate tumor and normal pancreas cDNA libraries, as described by Hara *et al.* (*Blood*, 84:189-199, 1994) with some modifications. Specifically, a prostate tumor-specific subtracted cDNA library was generated as

follows. Normal pancreas cDNA library (70 µg) was digested with EcoRI, NotI, and SfuI, followed by a filling-in reaction with DNA polymerase Klenow fragment. After phenol-chloroform extraction and ethanol precipitation, the DNA was dissolved in 100 µl of H₂O, heat-denatured and mixed with 100 µl (100 µg) of Photoprobe biotin (Vector Laboratories, Burlingame, CA). As
5 recommended by the manufacturer, the resulting mixture was irradiated with a 270 W sunlamp on ice for 20 minutes. Additional Photoprobe biotin (50 µl) was added and the biotinylation reaction was repeated. After extraction with butanol five times, the DNA was ethanol-precipitated and dissolved in 23 µl H₂O to form the driver DNA.

To form the tracer DNA, 10 µg prostate tumor cDNA library was digested with
10 BamHI and XhoI, phenol chloroform extracted and passed through Chroma spin-400 columns (Clontech). Following ethanol precipitation, the tracer DNA was dissolved in 5 µl H₂O. Tracer DNA was mixed with 15 µl driver DNA and 20 µl of 2 x hybridization buffer (1.5 M NaCl/10 mM EDTA/50 mM HEPES pH 7.5/0.2% sodium dodecyl sulfate), overlaid with mineral oil, and heat-denatured completely. The sample was immediately transferred into a 68 °C water bath and
15 incubated for 20 hours (long hybridization [LH]). The reaction mixture was then subjected to a streptavidin treatment followed by phenol/chloroform extraction. This process was repeated three more times. Subtracted DNA was precipitated, dissolved in 12 µl H₂O, mixed with 8 µl driver DNA and 20 µl of 2 x hybridization buffer, and subjected to a hybridization at 68 °C for 2 hours (short hybridization [SH]). After removal of biotinylated double-stranded DNA, subtracted cDNA
20 was ligated into BamHI/XhoI site of chloramphenicol resistant pBCSK⁺ (Stratagene, La Jolla, CA 92037) and transformed into ElectroMax *E. coli* DH10B cells by electroporation to generate a prostate tumor specific subtracted cDNA library (referred to as "prostate subtraction 1").

To analyze the subtracted cDNA library, plasmid DNA was prepared from 100 independent clones, randomly picked from the subtracted prostate tumor specific library and
25 grouped based on insert size. Representative cDNA clones were further characterized by DNA sequencing with a Perkin Elmer/Applied Biosystems Division Automated Sequencer Model 373A (Foster City, CA). Six cDNA clones, hereinafter referred to as F1-13, F1-12, F1-16, H1-1, H1-9 and H1-4, were shown to be abundant in the subtracted prostate-specific cDNA library. The determined 3' and 5' cDNA sequences for F1-12 are provided in SEQ ID NO: 2 and 3, respectively,
30 with determined 3' cDNA sequences for F1-13, F1-16, H1-1, H1-9 and H1-4 being provided in SEQ ID NO: 1 and 4-7, respectively.

The cDNA sequences for the isolated clones were compared to known sequences in the gene bank using the EMBL and GenBank databases (release 96). Four of the prostate tumor cDNA clones, F1-13, F1-16, H1-1, and H1-4, were determined to encode the following previously identified proteins: prostate specific antigen (PSA), human glandular kallikrein, human tumor expression enhanced gene, and mitochondria cytochrome C oxidase subunit II. H1-9 was found to be identical to a previously identified human autonomously replicating sequence. No significant homologies to the cDNA sequence for F1-12 were found.

Subsequent studies led to the isolation of a full-length cDNA sequence for F1-12. This sequence is provided in SEQ ID NO: 107, with the corresponding predicted amino acid sequence being provided in SEQ ID NO: 108.

To clone less abundant prostate tumor specific genes, cDNA library subtraction was performed by subtracting the prostate tumor cDNA library described above with the normal pancreas cDNA library and with the three most abundant genes in the previously subtracted prostate tumor specific cDNA library: human glandular kallikrein, prostate specific antigen (PSA), and mitochondria cytochrome C oxidase subunit II. Specifically, 1 μ g each of human glandular kallikrein, PSA and mitochondria cytochrome C oxidase subunit II cDNAs in pCDNA3.1 were added to the driver DNA and subtraction was performed as described above to provide a second subtracted cDNA library hereinafter referred to as the "subtracted prostate tumor specific cDNA library with spike".

Twenty-two cDNA clones were isolated from the subtracted prostate tumor specific cDNA library with spike. The determined 3' and 5' cDNA sequences for the clones referred to as J1-17, L1-12, N1-1862, J1-13, J1-19, J1-25, J1-24, K1-58, K1-63, L1-4 and L1-14 are provided in SEQ ID NOS: 8-9, 10-11, 12-13, 14-15, 16-17, 18-19, 20-21, 22-23, 24-25, 26-27 and 28-29, respectively. The determined 3' cDNA sequences for the clones referred to as J1-12, J1-16, J1-21, K1-48, K1-55, L1-2, L1-6, N1-1858, N1-1860, N1-1861, N1-1864 are provided in SEQ ID NOS: 30-40, respectively. Comparison of these sequences with those in the gene bank as described above, revealed no significant homologies to three of the five most abundant DNA species, (J1-17, L1-12 and N1-1862; SEQ ID NOS: 8-9, 10-11 and 12-13, respectively). Of the remaining two most abundant species, one (J1-12; SEQ ID NO:30) was found to be identical to the previously identified human pulmonary surfactant-associated protein, and the other (K1-48; SEQ ID NO:33) was determined to have some homology to *R. norvegicus* mRNA for 2-arylpropionyl-CoA epimerase. Of the 17 less abundant cDNA clones isolated from the subtracted prostate tumor specific cDNA

library with spike, four (J1-16, K1-55, L1-6 and N1-1864; SEQ ID NOS:31, 34, 36 and 40, respectively) were found to be identical to previously identified sequences, two (J1-21 and N1-1860; SEQ ID NOS: 32 and 38, respectively) were found to show some homology to non-human sequences, and two (L1-2 and N1-1861; SEQ ID NOS: 35 and 39, respectively) were found to show
5 some homology to known human sequences. No significant homologies were found to the polypeptides J1-13, J1-19, J1-24, J1-25, K1-58, K1-63, L1-4, L1-14 (SEQ ID NOS: 14-15, 16-17, 20-21, 18-19, 22-23, 24-25, 26-27, 28-29, respectively).

Subsequent studies led to the isolation of full length cDNA sequences for J1-17, L1-12 and N1-1862 (SEQ ID NOS: 109-111, respectively). The corresponding predicted amino acid
10 sequences are provided in SEQ ID NOS: 112-114. L1-12 is also referred to as P501S.

In a further experiment, four additional clones were identified by subtracting a prostate tumor cDNA library with normal prostate cDNA prepared from a pool of three normal prostate poly A+ RNA (referred to as "prostate subtraction 2"). The determined cDNA sequences for these clones, hereinafter referred to as U1-3064, U1-3065, V1-3692 and 1A-3905, are provided
15 in SEQ ID NO: 69-72, respectively. Comparison of the determined sequences with those in the gene bank revealed no significant homologies to U1-3065.

A second subtraction with spike (referred to as "prostate subtraction spike 2") was performed by subtracting a prostate tumor specific cDNA library with spike with normal pancreas cDNA library and further spiked with PSA, J1-17, pulmonary surfactant-associated protein, mitochondrial DNA, cytochrome c oxidase subunit II, N1-1862, autonomously replicating
20 sequence, L1-12 and tumor expression enhanced gene. Four additional clones, hereinafter referred to as V1-3686, R1-2330, 1B-3976 and V1-3679, were isolated. The determined cDNA sequences for these clones are provided in SEQ ID NO:73-76, respectively. Comparison of these sequences with those in the gene bank revealed no significant homologies to V1-3686 and R1-2330.

Further analysis of the three prostate subtractions described above (prostate subtraction 2, subtracted prostate tumor specific cDNA library with spike, and prostate subtraction
25 spike 2) resulted in the identification of sixteen additional clones, referred to as 1G-4736, 1G-4738, 1G-4741, 1G-4744, 1G-4734, 1H-4774, 1H-4781, 1H-4785, 1H-4787, 1H-4796, 1I-4810, 1I-4811, 1J-4876, 1K-4884 and 1K-4896. The determined cDNA sequences for these clones are provided in
30 SEQ ID NOS: 77-92, respectively. Comparison of these sequences with those in the gene bank as described above, revealed no significant homologies to 1G-4741, 1G-4734, 1I-4807, 1J-4876 and 1K-4896 (SEQ ID NOS: 79, 81, 87, 90 and 92, respectively). Further analysis of the isolated

clones led to the determination of extended cDNA sequences for 1G-4736, 1G-4738, 1G-4741, 1G-4744, 1H-4774, 1H-4781, 1H-4785, 1H-4787, 1H-4796, 1I-4807, 1J-4876, 1K-4884 and 1K-4896, provided in SEQ ID NOS: 179-188 and 191-193, respectively, and to the determination of additional partial cDNA sequences for 1I-4810 and 1I-4811, provided in SEQ ID NOS: 189 and 190, respectively.

Additional studies with prostate subtraction spike 2 resulted in the isolation of three more clones. Their sequences were determined as described above and compared to the most recent GenBank. All three clones were found to have homology to known genes, which are Cysteine-rich protein, KIAA0242, and KIAA0280 (SEQ ID NO: 317, 319, and 320, respectively). Further analysis of these clones by Synteni microarray (Synteni, Palo Alto, CA) demonstrated that all three clones were over-expressed in most prostate tumors and prostate BPH, as well as in the majority of normal prostate tissues tested, but low expression in all other normal tissues.

An additional subtraction was performed by subtracting a normal prostate cDNA library with normal pancreas cDNA (referred to as "prostate subtraction 3"). This led to the identification of six additional clones referred to as 1G-4761, 1G-4762, 1H-4766, 1H-4770, 1H-4771 and 1H-4772 (SEQ ID NOS: 93-98). Comparison of these sequences with those in the gene bank revealed no significant homologies to 1G-4761 and 1H-4771 (SEQ ID NOS: 93 and 97, respectively). Further analysis of the isolated clones led to the determination of extended cDNA sequences for 1G-4761, 1G-4762, 1H-4766 and 1H-4772 provided in SEQ ID NOS: 194-196 and 199, respectively, and to the determination of additional partial cDNA sequences for 1H-4770 and 1H-4771, provided in SEQ ID NOS: 197 and 198, respectively.

Subtraction of a prostate tumor cDNA library, prepared from a pool of polyA⁺ RNA from three prostate cancer patients, with a normal pancreas cDNA library (prostate subtraction 4) led to the identification of eight clones, referred to as 1D-4297, 1D-4309, 1D.1-4278, 1D-4288, 1D-4283, 1D-4304, 1D-4296 and 1D-4280 (SEQ ID NOS: 99-107). These sequences were compared to those in the gene bank as described above. No significant homologies were found to 1D-4283 and 1D-4304 (SEQ ID NOS: 103 and 104, respectively). Further analysis of the isolated clones led to the determination of extended cDNA sequences for 1D-4309, 1D.1-4278, 1D-4288, 1D-4283, 1D-4304, 1D-4296 and 1D-4280, provided in SEQ ID NOS: 200-206, respectively.

cDNA clones isolated in prostate subtraction 1 and prostate subtraction 2, described above, were colony PCR amplified and their mRNA expression levels in prostate tumor, normal prostate and in various other normal tissues were determined using microarray technology (Synteni,

Palo Alto, CA). Briefly, the PCR amplification products were dotted onto slides in an array format, with each product occupying a unique location in the array. mRNA was extracted from the tissue sample to be tested, reverse transcribed, and fluorescent-labeled cDNA probes were generated. The microarrays were probed with the labeled cDNA probes, the slides scanned and fluorescence intensity was measured. This intensity correlates with the hybridization intensity. Two clones (referred to as P509S and P510S) were found to be over-expressed in prostate tumor and normal prostate and expressed at low levels in all other normal tissues tested (liver, pancreas, skin, bone marrow, brain, breast, adrenal gland, bladder, testes, salivary gland, large intestine, kidney, ovary, lung, spinal cord, skeletal muscle and colon). The determined cDNA sequences for P509S and P510S are provided in SEQ ID NO: 223 and 224, respectively. Comparison of these sequences with those in the gene bank as described above, revealed some homology to previously identified ESTs.

Additional studies led to the isolation of the full-length cDNA sequence for P509S. This sequence is provided in SEQ ID NO: 332, with the corresponding predicted amino acid sequence being provided in SEQ ID NO: 339. Two variant full-length cDNA sequences for P510S are provided in SEQ ID NO: 535 and 536, with the corresponding predicted amino acid sequences being provided in SEQ ID NO: 537 and 538, respectively.

EXAMPLE 2

DETERMINATION OF TISSUE SPECIFICITY OF PROSTATE-SPECIFIC POLYPEPTIDES

Using gene specific primers, mRNA expression levels for the representative prostate-specific polypeptides F1-16, H1-1, J1-17 (also referred to as P502S), L1-12 (also referred to as P501S), F1-12 (also referred to as P504S) and N1-1862 (also referred to as P503S) were examined in a variety of normal and tumor tissues using RT-PCR.

Briefly, total RNA was extracted from a variety of normal and tumor tissues using Trizol reagent as described above. First strand synthesis was carried out using 1-2 μ g of total RNA with SuperScript II reverse transcriptase (BRL Life Technologies) at 42 °C for one hour. The cDNA was then amplified by PCR with gene-specific primers. To ensure the semi-quantitative nature of the RT-PCR, β -actin was used as an internal control for each of the tissues examined. First, serial dilutions of the first strand cDNAs were prepared and RT-PCR assays were performed using β -actin specific primers. A dilution was then chosen that enabled the linear range amplification of the β -actin template and which was sensitive enough to reflect the differences in the initial copy numbers. Using these conditions, the β -actin levels were determined for each

reverse transcription reaction from each tissue. DNA contamination was minimized by DNase treatment and by assuring a negative PCR result when using first strand cDNA that was prepared without adding reverse transcriptase.

mRNA Expression levels were examined in four different types of tumor tissue (prostate tumor from 2 patients, breast tumor from 3 patients, colon tumor, lung tumor), and sixteen different normal tissues, including prostate, colon, kidney, liver, lung, ovary, pancreas, skeletal muscle, skin, stomach, testes, bone marrow and brain. F1-16 was found to be expressed at high levels in prostate tumor tissue, colon tumor and normal prostate, and at lower levels in normal liver, skin and testes, with expression being undetectable in the other tissues examined. H1-1 was found to be expressed at high levels in prostate tumor, lung tumor, breast tumor, normal prostate, normal colon and normal brain, at much lower levels in normal lung, pancreas, skeletal muscle, skin, small intestine, bone marrow, and was not detected in the other tissues tested. J1-17 (P502S) and L1-12 (P501S) appear to be specifically over-expressed in prostate, with both genes being expressed at high levels in prostate tumor and normal prostate but at low to undetectable levels in all the other tissues examined. N1-1862 (P503S) was found to be over-expressed in 60% of prostate tumors and detectable in normal colon and kidney. The RT-PCR results thus indicate that F1-16, H1-1, J1-17 (P502S), N1-1862 (P503S) and L1-12 (P501S) are either prostate specific or are expressed at significantly elevated levels in prostate.

Further RT-PCR studies showed that F1-12 (P504S) is over-expressed in 60% of prostate tumors, detectable in normal kidney but not detectable in all other tissues tested. Similarly, R1-2330 was shown to be over-expressed in 40% of prostate tumors, detectable in normal kidney and liver, but not detectable in all other tissues tested. U1-3064 was found to be over-expressed in 60% of prostate tumors, and also expressed in breast and colon tumors, but was not detectable in normal tissues.

RT-PCR characterization of R1-2330, U1-3064 and 1D-4279 showed that these three antigens are over-expressed in prostate and/or prostate tumors.

Northern analysis with four prostate tumors, two normal prostate samples, two BPH prostates, and normal colon, kidney, liver, lung, pancreas, skeletal muscle, brain, stomach, testes, small intestine and bone marrow, showed that L1-12 (P501S) is over-expressed in prostate tumors and normal prostate, while being undetectable in other normal tissues tested. J1-17 (P502S) was detected in two prostate tumors and not in the other tissues tested. N1-1862 (P503S) was found to be over-expressed in three prostate tumors and to be expressed in normal prostate, colon and kidney,

but not in other tissues tested. F1-12 (P504S) was found to be highly expressed in two prostate tumors and to be undetectable in all other tissues tested.

The microarray technology described above was used to determine the expression levels of representative antigens described herein in prostate tumor, breast tumor and the following
5 normal tissues: prostate, liver, pancreas, skin, bone marrow, brain, breast, adrenal gland, bladder, testes, salivary gland, large intestine, kidney, ovary, lung, spinal cord, skeletal muscle and colon. L1-12 (P501S) was found to be over-expressed in normal prostate and prostate tumor, with some expression being detected in normal skeletal muscle. Both J1-12 and F1-12 (P504S) were found to be over-expressed in prostate tumor, with expression being lower or undetectable in all other tissues
10 tested. N1-1862 (P503S) was found to be expressed at high levels in prostate tumor and normal prostate, and at low levels in normal large intestine and normal colon, with expression being undetectable in all other tissues tested. R1-2330 was found to be over-expressed in prostate tumor and normal prostate, and to be expressed at lower levels in all other tissues tested. 1D-4279 was found to be over-expressed in prostate tumor and normal prostate, expressed at lower levels in
15 normal spinal cord, and to be undetectable in all other tissues tested.

Further microarray analysis to specifically address the extent to which P501S (SEQ ID NO: 110) was expressed in breast tumor revealed moderate over-expression not only in breast tumor, but also in metastatic breast tumor (2/31), with negligible to low expression in normal tissues. This data suggests that P501S may be over-expressed in various breast tumors as well as in
20 prostate tumors.

The expression levels of 32 ESTs (expressed sequence tags) described by Vasmatzis *et al.* (*Proc. Natl. Acad. Sci. USA* 95:300-304, 1998) in a variety of tumor and normal tissues were examined by microarray technology as described above. Two of these clones (referred to as P1000C and P1001C) were found to be over-expressed in prostate tumor and normal prostate, and
25 expressed at low to undetectable levels in all other tissues tested (normal aorta, thymus, resting and activated PBMC, epithelial cells, spinal cord, adrenal gland, fetal tissues, skin, salivary gland, large intestine, bone marrow, liver, lung, dendritic cells, stomach, lymph nodes, brain, heart, small intestine, skeletal muscle, colon and kidney. The determined cDNA sequences for P1000C and P1001C are provided in SEQ ID NO: 384 and 472, respectively. The sequence of P1001C was
30 found to show some homology to the previously isolated Human mRNA for JM27 protein. No significant homologies were found to the sequence of P1000C.

The expression of the polypeptide encoded by the full length cDNA sequence for F1-12 (also referred to as P504S; SEQ ID NO: 108) was investigated by immunohistochemical analysis. Rabbit-anti-P504S polyclonal antibodies were generated against the full length P504S protein by standard techniques. Subsequent isolation and characterization of the polyclonal antibodies were also performed by techniques well known in the art. Immunohistochemical analysis showed that the P504S polypeptide was expressed in 100% of prostate carcinoma samples tested (n=5).

The rabbit-anti-P504S polyclonal antibody did not appear to label benign prostate cells with the same cytoplasmic granular staining, but rather with light nuclear staining. Analysis of normal tissues revealed that the encoded polypeptide was found to be expressed in some, but not all normal human tissues. Positive cytoplasmic staining with rabbit-anti-P504S polyclonal antibody was found in normal human kidney, liver, brain, colon and lung-associated macrophages, whereas heart and bone marrow were negative.

This data indicates that the P504S polypeptide is present in prostate cancer tissues, and that there are qualitative and quantitative differences in the staining between benign prostatic hyperplasia tissues and prostate cancer tissues, suggesting that this polypeptide may be detected selectively in prostate tumors and therefore be useful in the diagnosis of prostate cancer.

EXAMPLE 3

ISOLATION AND CHARACTERIZATION OF PROSTATE-SPECIFIC POLYPEPTIDES BY PCR-BASED SUBTRACTION

A cDNA subtraction library, containing cDNA from normal prostate subtracted with ten other normal tissue cDNAs (brain, heart, kidney, liver, lung, ovary, placenta, skeletal muscle, spleen and thymus) and then submitted to a first round of PCR amplification, was purchased from Clontech. This library was subjected to a second round of PCR amplification, following the manufacturer's protocol. The resulting cDNA fragments were subcloned into the vector pT7 Blue T-vector (Novagen, Madison, WI) and transformed into XL-1 Blue MRF' *E. coli* (Stratagene). DNA was isolated from independent clones and sequenced using a Perkin Elmer/Applied Biosystems Division Automated Sequencer Model 373A.

Fifty-nine positive clones were sequenced. Comparison of the DNA sequences of these clones with those in the gene bank, as described above, revealed no significant homologies to 25 of these clones, hereinafter referred to as P5, P8, P9, P18, P20, P30, P34, P36, P38, P39, P42, P49, P50, P53, P55, P60, P64, P65, P73, P75, P76, P79 and P84. The determined cDNA sequences
5 for these clones are provided in SEQ ID NO: 41-45, 47-52 and 54-65, respectively. P29, P47, P68, P80 and P82 (SEQ ID NO: 46, 53 and 66-68, respectively) were found to show some degree of homology to previously identified DNA sequences. To the best of the inventors' knowledge, none of these sequences have been previously shown to be present in prostate.

Further studies using the PCR-based methodology described above resulted in the
10 isolation of more than 180 additional clones, of which 23 clones were found to show no significant homologies to known sequences. The determined cDNA sequences for these clones are provided in SEQ ID NO: 115-123, 127, 131, 137, 145, 147-151, 153, 156-158 and 160. Twenty-three clones (SEQ ID NO: 124-126, 128-130, 132-136, 138-144, 146, 152, 154, 155 and 159) were found to show some homology to previously identified ESTs. An additional ten clones (SEQ ID NO: 161-
15 170) were found to have some degree of homology to known genes. Larger cDNA clones containing the P20 sequence represent splice variants of a gene referred to as P703P. The determined DNA sequence for the variants referred to as DE1, DE13 and DE14 are provided in SEQ ID NOS: 171, 175 and 177, respectively, with the corresponding predicted amino acid sequences being provided in SEQ ID NO: 172, 176 and 178, respectively. The determined cDNA
20 sequence for an extended spliced form of P703 is provided in SEQ ID NO: 225. The DNA sequences for the splice variants referred to as DE2 and DE6 are provided in SEQ ID NOS: 173 and 174, respectively.

mRNA Expression levels for representative clones in tumor tissues (prostate (n=5), breast (n=2), colon and lung) normal tissues (prostate (n=5), colon, kidney, liver, lung (n=2), ovary
25 (n=2), skeletal muscle, skin, stomach, small intestine and brain), and activated and non-activated PBMC was determined by RT-PCR as described above. Expression was examined in one sample of each tissue type unless otherwise indicated.

P9 was found to be highly expressed in normal prostate and prostate tumor compared to all normal tissues tested except for normal colon which showed comparable expression. P20, a
30 portion of the P703P gene, was found to be highly expressed in normal prostate and prostate tumor, compared to all twelve normal tissues tested. A modest increase in expression of P20 in breast tumor (n=2), colon tumor and lung tumor was seen compared to all normal tissues except lung (1 of

2). Increased expression of P18 was found in normal prostate, prostate tumor and breast tumor compared to other normal tissues except lung and stomach. A modest increase in expression of P5 was observed in normal prostate compared to most other normal tissues. However, some elevated expression was seen in normal lung and PBMC. Elevated expression of P5 was also observed in prostate tumors (2 of 5), breast tumor and one lung tumor sample. For P30, similar expression levels were seen in normal prostate and prostate tumor, compared to six of twelve other normal tissues tested. Increased expression was seen in breast tumors, one lung tumor sample and one colon tumor sample, and also in normal PBMC. P29 was found to be over-expressed in prostate tumor (5 of 5) and normal prostate (5 of 5) compared to the majority of normal tissues. However, substantial expression of P29 was observed in normal colon and normal lung (2 of 2). P80 was found to be over-expressed in prostate tumor (5 of 5) and normal prostate (5 of 5) compared to all other normal tissues tested, with increased expression also being seen in colon tumor.

Further studies resulted in the isolation of twelve additional clones, hereinafter referred to as 10-d8, 10-h10, 11-c8, 7-g6, 8-b5, 8-b6, 8-d4, 8-d9, 8-g3, 8-h11, 9-f12 and 9-f3. The determined DNA sequences for 10-d8, 10-h10, 11-c8, 8-d4, 8-d9, 8-h11, 9-f12 and 9-f3 are provided in SEQ ID NO: 207, 208, 209, 216, 217, 220, 221 and 222, respectively. The determined forward and reverse DNA sequences for 7-g6, 8-b5, 8-b6 and 8-g3 are provided in SEQ ID NO: 210 and 211; 212 and 213; 214 and 215; and 218 and 219, respectively. Comparison of these sequences with those in the gene bank revealed no significant homologies to the sequence of 9-f3. The clones 10-d8, 11-c8 and 8-h11 were found to show some homology to previously isolated ESTs, while 10-h10, 8-b5, 8-b6, 8-d4, 8-d9, 8-g3 and 9-f12 were found to show some homology to previously identified genes. Further characterization of 7-G6 and 8-G3 showed identity to the known genes PAP and PSA, respectively.

mRNA expression levels for these clones were determined using the micro-array technology described above. The clones 7-G6, 8-G3, 8-B5, 8-B6, 8-D4, 8-D9, 9-F3, 9-F12, 9-H3, 10-A2, 10-A4, 11-C9 and 11-F2 were found to be over-expressed in prostate tumor and normal prostate, with expression in other tissues tested being low or undetectable. Increased expression of 8-F11 was seen in prostate tumor and normal prostate, bladder, skeletal muscle and colon. Increased expression of 10-H10 was seen in prostate tumor and normal prostate, bladder, lung, colon, brain and large intestine. Increased expression of 9-B1 was seen in prostate tumor, breast tumor, and normal prostate, salivary gland, large intestine and skin, with increased expression of 11-C8 being seen in prostate tumor, and normal prostate and large intestine.

An additional cDNA fragment derived from the PCR-based normal prostate subtraction, described above, was found to be prostate specific by both micro-array technology and RT-PCR. The determined cDNA sequence of this clone (referred to as 9-A11) is provided in SEQ ID NO: 226. Comparison of this sequence with those in the public databases revealed 99% identity to the known gene HOXB13.

Further studies led to the isolation of the clones 8-C6 and 8-H7. The determined cDNA sequences for these clones are provided in SEQ ID NO: 227 and 228, respectively. These sequences were found to show some homology to previously isolated ESTs.

PCR and hybridization-based methodologies were employed to obtain longer cDNA sequences for clone P20 (also referred to as P703P), yielding three additional cDNA fragments that progressively extend the 5' end of the gene. These fragments, referred to as P703PDE5, P703P6.26, and P703PX-23 (SEQ ID NO: 326, 328 and 330, with the predicted corresponding amino acid sequences being provided in SEQ ID NO: 327, 329 and 331, respectively) contain additional 5' sequence. P703PDE5 was recovered by screening of a cDNA library (#141-26) with a portion of P703P as a probe. P703P6.26 was recovered from a mixture of three prostate tumor cDNAs and P703PX_23 was recovered from cDNA library (#438-48). Together, the additional sequences include all of the putative mature serine protease along with part of the putative signal sequence. The putative full-length cDNA sequence for P703P is provided in SEQ ID NO: 524, with the corresponding predicted amino acid sequence being provided in SEQ ID NO: 525.

Further studies using a PCR-based subtraction library of a prostate tumor pool subtracted against a pool of normal tissues (referred to as JP: PCR subtraction) resulted in the isolation of thirteen additional clones, seven of which did not share any significant homology to known GenBank sequences. The determined cDNA sequences for these seven clones (P711P, P712P, novel 23, P774P, P775P, P710P and P768P) are provided in SEQ ID NO: 307-311, 313 and 315, respectively. The remaining six clones (SEQ ID NO: 316 and 321-325) were shown to share some homology to known genes. By microarray analysis, all thirteen clones showed three or more fold over-expression in prostate tissues, including prostate tumors, BPH and normal prostate as compared to normal non-prostate tissues. Clones P711P, P712P, novel 23 and P768P showed over-expression in most prostate tumors and BPH tissues tested (n=29), and in the majority of normal prostate tissues (n=4), but background to low expression levels in all normal tissues. Clones P774P, P775P and P710P showed comparatively lower expression and expression in fewer prostate tumors and BPH samples, with negative to low expression in normal prostate.

The full-length cDNA for P711P was obtained by employing the partial sequence of SEQ ID NO: 307 to screen a prostate cDNA library. Specifically, a directionally cloned prostate cDNA library was prepared using standard techniques. One million colonies of this library were plated onto LB/Amp plates. Nylon membrane filters were used to lift these colonies, and the cDNAs which were picked up by these filters were denatured and cross-linked to the filters by UV light. The P711P cDNA fragment of SEQ ID NO: 307 was radio-labeled and used to hybridize with these filters. Positive clones were selected, and cDNAs were prepared and sequenced using an automatic Perkin Elmer/Applied Biosystems sequencer. The determined full-length sequence of P711P is provided in SEQ ID NO: 382, with the corresponding predicted amino acid sequence being provided in SEQ ID NO: 383.

Using PCR and hybridization-based methodologies, additional cDNA sequence information was derived for two clones described above, 11-C9 and 9-F3, herein after referred to as P707P and P714P, respectively (SEQ ID NO: 333 and 334). After comparison with the most recent GenBank, P707P was found to be a splice variant of the known gene HoxB13. In contrast, no significant homologies to P714P were found.

Clones 8-B3, P89, P98, P130 and P201 (as disclosed in U.S. Patent Application No. 09/020,956, filed February 9, 1998) were found to be contained within one contiguous sequence, referred to as P705P (SEQ ID NO: 335, with the predicted amino acid sequence provided in SEQ ID NO: 336), which was determined to be a splice variant of the known gene NKX 3.1.

Further studies on P775P resulted in the isolation of four additional sequences (SEQ ID NO: 473-476) which are all splice variants of the P775P gene. The sequence of SEQ ID NO: 474 was found to contain two open reading frames (ORFs). The predicted amino acid sequences encoded by these ORFs are provided in SEQ ID NO: 477 and 478. The cDNA sequence of SEQ ID NO: 475 was found to contain an ORF which encodes the amino acid sequence of SEQ ID NO: 479. The cDNA sequence of SEQ ID NO: 473 was found to contain four ORFs. The predicted amino acid sequences encoded by these ORFs are provided in SEQ ID NO: 480-483.

Subsequent studies led to the identification of a genomic region on chromosome 22q11.2, known as the Cat Eye Syndrome region, that contains the five prostate genes P704P, P712P, P774P, P775P and B305D. The relative location of each of these five genes within the genomic region is shown in Fig. 10. This region may therefore be associated with malignant tumors, and other potential tumor genes may be contained within this region. These studies also led

to the identification of a potential open reading frame (ORF) for P775P (provided in SEQ ID NO: 533), which encodes the amino acid sequence of SEQ ID NO: 534.

EXAMPLE 4

SYNTHESIS OF POLYPEPTIDES

Polypeptides may be synthesized on a Perkin Elmer/Applied Biosystems 430A peptide synthesizer using Fmoc chemistry with HPTU (O-Benzotriazole-N,N,N',N'-tetramethyluronium hexafluorophosphate) activation. A Gly-Cys-Gly sequence may be attached to the amino terminus of the peptide to provide a method of conjugation, binding to an immobilized surface, or labeling of the peptide. Cleavage of the peptides from the solid support may be carried out using the following cleavage mixture: trifluoroacetic acid:ethanedithiol:thioanisole:water:phenol (40:1:2:2:3). After cleaving for 2 hours, the peptides may be precipitated in cold methyl-t-butyl-ether. The peptide pellets may then be dissolved in water containing 0.1% trifluoroacetic acid (TFA) and lyophilized prior to purification by C18 reverse phase HPLC. A gradient of 0%-60% acetonitrile (containing 0.1% TFA) in water (containing 0.1% TFA) may be used to elute the peptides. Following lyophilization of the pure fractions, the peptides may be characterized using electrospray or other types of mass spectrometry and by amino acid analysis.

EXAMPLE 5

FURTHER ISOLATION AND CHARACTERIZATION OF PROSTATE-SPECIFIC POLYPEPTIDES BY PCR-BASED SUBTRACTION

A cDNA library generated from prostate primary tumor mRNA as described above was subtracted with cDNA from normal prostate. The subtraction was performed using a PCR-based protocol (Clontech), which was modified to generate larger fragments. Within this protocol, tester and driver double stranded cDNA were separately digested with five restriction enzymes that recognize six-nucleotide restriction sites (MluI, MscI, PvuII, SalI and StuI). This digestion resulted in an average cDNA size of 600 bp, rather than the average size of 300 bp that results from digestion with RsaI according to the Clontech protocol. This modification did not affect the

subtraction efficiency. Two tester populations were then created with different adapters, and the driver library remained without adapters.

The tester and driver libraries were then hybridized using excess driver cDNA. In the first hybridization step, driver was separately hybridized with each of the two tester cDNA populations. This resulted in populations of (a) unhybridized tester cDNAs, (b) tester cDNAs hybridized to other tester cDNAs, (c) tester cDNAs hybridized to driver cDNAs and (d) unhybridized driver cDNAs. The two separate hybridization reactions were then combined, and rehybridized in the presence of additional denatured driver cDNA. Following this second hybridization, in addition to populations (a) through (d), a fifth population (e) was generated in which tester cDNA with one adapter hybridized to tester cDNA with the second adapter. Accordingly, the second hybridization step resulted in enrichment of differentially expressed sequences which could be used as templates for PCR amplification with adaptor-specific primers.

The ends were then filled in, and PCR amplification was performed using adaptor-specific primers. Only population (e), which contained tester cDNA that did not hybridize to driver cDNA, was amplified exponentially. A second PCR amplification step was then performed, to reduce background and further enrich differentially expressed sequences.

This PCR-based subtraction technique normalizes differentially expressed cDNAs so that rare transcripts that are overexpressed in prostate tumor tissue may be recoverable. Such transcripts would be difficult to recover by traditional subtraction methods.

In addition to genes known to be overexpressed in prostate tumor, seventy-seven further clones were identified. Sequences of these partial cDNAs are provided in SEQ ID NO: 29 to 305. Most of these clones had no significant homology to database sequences. Exceptions were JPTPN23 (SEQ ID NO: 231; similarity to pig valosin-containing protein), JPTPN30 (SEQ ID NO: 234; similarity to rat mRNA for proteasome subunit), JPTPN45 (SEQ ID NO: 243; similarity to rat *norvegicus* cytosolic NADP-dependent isocitrate dehydrogenase), JPTPN46 (SEQ ID NO: 244; similarity to human subclone H8 4 d4 DNA sequence), JP1D6 (SEQ ID NO: 265; similarity to *G. gallus* dynein light chain-A), JP8D6 (SEQ ID NO: 288; similarity to human BAC clone RG016J04), JP8F5 (SEQ ID NO: 289; similarity to human subclone H8 3 b5 DNA sequence), and JP8E9 (SEQ ID NO: 299; similarity to human Alu sequence).

Additional studies using the PCR-based subtraction library consisting of a prostate tumor pool subtracted against a normal prostate pool (referred to as PT-PN PCR subtraction) yielded three additional clones. Comparison of the cDNA sequences of these clones with the most

recent release of GenBank revealed no significant homologies to the two clones referred to as P715P and P767P (SEQ ID NO: 312 and 314). The remaining clone was found to show some homology to the known gene KIAA0056 (SEQ ID NO: 318). Using microarray analysis to measure mRNA expression levels in various tissues, all three clones were found to be over-expressed in prostate tumors and BPH tissues. Specifically, clone P715P was over-expressed in most prostate tumors and BPH tissues by a factor of three or greater, with elevated expression seen in the majority of normal prostate samples and in fetal tissue, but negative to low expression in all other normal tissues. Clone P767P was over-expressed in several prostate tumors and BPH tissues, with moderate expression levels in half of the normal prostate samples, and background to low expression in all other normal tissues tested.

Further analysis, by microarray as described above, of the PT-PN PCR subtraction library and of a DNA subtraction library containing cDNA from prostate tumor subtracted with a pool of normal tissue cDNAs, led to the isolation of 27 additional clones (SEQ ID NO: 340-365 and 381) which were determined to be over-expressed in prostate tumor. The clones of SEQ ID NO: 341, 342, 345, 347, 348, 349, 351, 355-359, 361, 362 and 364 were also found to be expressed in normal prostate. Expression of all 26 clones in a variety of normal tissues was found to be low or undetectable, with the exception of P544S (SEQ ID NO: 356) which was found to be expressed in small intestine. Of the 26 clones, 10 (SEQ ID NO: 340-349) were found to show some homology to previously identified sequences. No significant homologies were found to the clones of SEQ ID NO: 350, 351 and 353-365.

Further studies on the clone of SEQ ID NO: 352 (referred to as P790P) led to the isolation of the full-length cDNA sequence of SEQ ID NO: 526. The corresponding predicted amino acid is provided in SEQ ID NO: 527. Data from two quantitative PCR experiments indicated that P790P is over-expressed in 11/15 tested prostate tumor samples and is expressed at low levels in spinal cord, with no expression being seen in all other normal samples tested. Data from further PCR experiments and microarray experiments showed over-expression in normal prostate and prostate tumor with little or no expression in other tissues tested. P790P was subsequently found to show significant homology to a previously identified G-protein coupled prostate tissue receptor.

EXAMPLE 6

PEPTIDE PRIMING OF MICE AND PROPAGATION OF CTL LINES

5 6.1. This Example illustrates the preparation of a CTL cell line specific for cells expressing the P502S gene.

Mice expressing the transgene for human HLA A2Kb (provided by Dr L. Sherman, The Scripps Research Institute, La Jolla, CA) were immunized with P2S#12 peptide (VLGWVAEL; SEQ ID NO: 306), which is derived from the P502S gene (also referred to herein as J1-17, SEQ ID NO: 8), as described by Theobald et al., *Proc. Natl. Acad. Sci. USA* 92:11993-11997, 1995 with the following modifications. Mice were immunized with 100µg of P2S#12 and 120µg of an I-A^b binding peptide derived from hepatitis B Virus protein emulsified in incomplete Freund's adjuvant. Three weeks later these mice were sacrificed and using a nylon mesh single cell suspensions prepared. Cells were then resuspended at 6×10^6 cells/ml in complete media (RPMI-1640; Gibco BRL, Gaithersburg, MD) containing 10% FCS, 2mM Glutamine (Gibco BRL), sodium pyruvate (Gibco BRL), non-essential amino acids (Gibco BRL), 2×10^{-5} M 2-mercaptoethanol, 50U/ml penicillin and streptomycin, and cultured in the presence of irradiated (3000 rads) P2S#12-pulsed (5mg/ml P2S#12 and 10mg/ml β 2-microglobulin) LPS blasts (A2 transgenic spleens cells cultured in the presence of 7µg/ml dextran sulfate and 25µg/ml LPS for 3 days). Six days later, cells (5×10^5 /ml) were restimulated with 2.5×10^6 /ml peptide pulsed irradiated (20,000 rads) EL4A2Kb cells (Sherman et al, *Science* 258:815-818, 1992) and 3×10^6 /ml A2 transgenic spleen feeder cells. Cells were cultured in the presence of 20U/ml IL-2. Cells continued to be restimulated on a weekly basis as described, in preparation for cloning the line.

P2S#12 line was cloned by limiting dilution analysis with peptide pulsed EL4 A2Kb tumor cells (1×10^4 cells/ well) as stimulators and A2 transgenic spleen cells as feeders (5×10^5 cells/ well) grown in the presence of 30U/ml IL-2. On day 14, cells were restimulated as before. On day 21, clones that were growing were isolated and maintained in culture. Several of these clones demonstrated significantly higher reactivity (lysis) against human fibroblasts (HLA A2Kb expressing) transduced with P502S than against control fibroblasts. An example is presented in Figure 1.

This data indicates that P2S #12 represents a naturally processed epitope of the P502S protein that is expressed in the context of the human HLA A2Kb molecule.

6.2. This Example illustrates the preparation of murine CTL lines and CTL clones specific for cells expressing the P501S gene.

This series of experiments were performed similarly to that described above. Mice were immunized with the P1S#10 peptide (SEQ ID NO: 337), which is derived from the P501S gene (also referred to herein as L1-12, SEQ ID NO: 110). The P1S#10 peptide was derived by analysis of the predicted polypeptide sequence for P501S for potential HLA-A2 binding sequences as defined by published HLA-A2 binding motifs (Parker, KC, *et al*, *J. Immunol.*, 152:163, 1994). P1S#10 peptide was synthesized as described in Example 4, and empirically tested for HLA-A2 binding using a T cell based competition assay. Predicted A2 binding peptides were tested for their ability to compete HLA-A2 specific peptide presentation to an HLA-A2 restricted CTL clone (D150M58), which is specific for the HLA-A2 binding influenza matrix peptide fluM58. D150M58 CTL secretes TNF in response to self-presentation of peptide fluM58. In the competition assay, test peptides at 100-200 µg/ml were added to cultures of D150M58 CTL in order to bind HLA-A2 on the CTL. After thirty minutes, CTL cultured with test peptides, or control peptides, were tested for their antigen dose response to the fluM58 peptide in a standard TNF bioassay. As shown in Figure 3, peptide P1S#10 competes HLA-A2 restricted presentation of fluM58, demonstrating that peptide P1S#10 binds HLA-A2.

Mice expressing the transgene for human HLA A2Kb were immunized as described by Theobald *et al.* (*Proc. Natl. Acad. Sci. USA* 92:11993-11997, 1995) with the following modifications. Mice were immunized with 62.5µg of P1S #10 and 120µg of an I-A^b binding peptide derived from Hepatitis B Virus protein emulsified in incomplete Freund's adjuvant. Three weeks later these mice were sacrificed and single cell suspensions prepared using a nylon mesh. Cells were then resuspended at 6×10^6 cells/ml in complete media (as described above) and cultured in the presence of irradiated (3000 rads) P1S#10-pulsed (2µg/ml P1S#10 and 10mg/ml β2-microglobulin) LPS blasts (A2 transgenic spleens cells cultured in the presence of 7µg/ml dextran sulfate and 25µg/ml LPS for 3 days). Six days later cells (5×10^5 /ml) were restimulated with 2.5×10^6 /ml peptide-pulsed irradiated (20,000 rads) EL4A2Kb cells, as described above, and 3×10^6 /ml A2 transgenic spleen feeder cells. Cells were cultured in the presence of 20 U/ml IL-2. Cells were restimulated on a weekly basis in preparation for cloning. After three rounds of *in vitro* stimulations, one line was generated that recognized P1S#10-pulsed Jurkat A2Kb targets and P501S-transduced Jurkat targets as shown in Figure 4.

A P1S#10-specific CTL line was cloned by limiting dilution analysis with peptide pulsed EL4 A2Kb tumor cells (1×10^4 cells/ well) as stimulators and A2 transgenic spleen cells as feeders (5×10^5 cells/ well) grown in the presence of 30U/ml IL-2. On day 14, cells were restimulated as before. On day 21, viable clones were isolated and maintained in culture. As shown in Figure 5, five of these clones demonstrated specific cytolytic reactivity against P501S-transduced Jurkat A2Kb targets. This data indicates that P1S#10 represents a naturally processed epitope of the P501S protein that is expressed in the context of the human HLA-A2.1 molecule.

EXAMPLE 7

PRIMING OF CTL *IN VIVO* USING NAKED DNA IMMUNIZATION WITH A PROSTATE ANTIGEN

The prostate-specific antigen L1-12, as described above, is also referred to as P501S. HLA A2Kb Tg mice (provided by Dr L. Sherman, The Scripps Research Institute, La Jolla, CA) were immunized with 100 μ g P501S in the vector VR1012 either intramuscularly or intradermally. The mice were immunized three times, with a two week interval between immunizations. Two weeks after the last immunization, immune spleen cells were cultured with Jurkat A2Kb-P501S transduced stimulator cells. CTL lines were stimulated weekly. After two weeks of *in vitro* stimulation, CTL activity was assessed against P501S transduced targets. Two out of 8 mice developed strong anti-P501S CTL responses. These results demonstrate that P501S contains at least one naturally processed HLA-A2-restricted CTL epitope.

EXAMPLE 8

ABILITY OF HUMAN T CELLS TO RECOGNIZE PROSTATE-SPECIFIC POLYPEPTIDES

This Example illustrates the ability of T cells specific for a prostate tumor polypeptide to recognize human tumor.

Human CD8⁺ T cells were primed *in vitro* to the P2S-12 peptide (SEQ ID NO: 306) derived from P502S (also referred to as J1-17) using dendritic cells according to the protocol of Van Tsai et al. (*Critical Reviews in Immunology* 18:65-75, 1998). The resulting CD8⁺ T cell microcultures were tested for their ability to recognize the P2S-12 peptide presented by autologous fibroblasts or fibroblasts which were transduced to express the P502S gene in a γ -interferon

ELISPOT assay (*see* Lalvani et al., *J. Exp. Med.* 186:859-865, 1997). Briefly, titrating numbers of T cells were assayed in duplicate on 10^4 fibroblasts in the presence of 3 $\mu\text{g/ml}$ human β_2 -microglobulin and 1 $\mu\text{g/ml}$ P2S-12 peptide or control E75 peptide. In addition, T cells were simultaneously assayed on autologous fibroblasts transduced with the P502S gene or as a control, fibroblasts transduced with HER-2/*neu*. Prior to the assay, the fibroblasts were treated with 10 ng/ml γ -interferon for 48 hours to upregulate class I MHC expression. One of the microcultures (#5) demonstrated strong recognition of both peptide pulsed fibroblasts as well as transduced fibroblasts in a γ -interferon ELISPOT assay. Figure 2A demonstrates that there was a strong increase in the number of γ -interferon spots with increasing numbers of T cells on fibroblasts pulsed with the P2S-12 peptide (solid bars) but not with the control E75 peptide (open bars). This shows the ability of these T cells to specifically recognize the P2S-12 peptide. As shown in Figure 2B, this microculture also demonstrated an increase in the number of γ -interferon spots with increasing numbers of T cells on fibroblasts transduced to express the P502S gene but not the HER-2/*neu* gene. These results provide additional confirmatory evidence that the P2S-12 peptide is a naturally processed epitope of the P502S protein. Furthermore, this also demonstrates that there exists in the human T cell repertoire, high affinity T cells which are capable of recognizing this epitope. These T cells should also be capable of recognizing human tumors which express the P502S gene.

EXAMPLE 9

ELICITATION OF PROSTATE ANTIGEN-SPECIFIC CTL RESPONSES IN HUMAN BLOOD

This Example illustrates the ability of a prostate-specific antigen to elicit a CTL response in blood of normal humans.

Autologous dendritic cells (DC) were differentiated from monocyte cultures derived from PBMC of normal donors by growth for five days in RPMI medium containing 10% human serum, 50 ng/ml GMCSF and 30 ng/ml IL-4. Following culture, DC were infected overnight with recombinant P501S-expressing vaccinia virus at an M.O.I. of 5 and matured for 8 hours by the addition of 2 micrograms/ml CD40 ligand. Virus was inactivated by UV irradiation, CD8⁺ cells were isolated by positive selection using magnetic beads, and priming cultures were initiated in 24-well plates. Following five stimulation cycles using autologous fibroblasts retrovirally transduced

to express P501S and CD80, CD8+ lines were identified that specifically produced interferon-gamma when stimulated with autologous P501S-transduced fibroblasts. The P501S-specific activity of cell line 3A-1 could be maintained following additional stimulation cycles on autologous B-LCL transduced with P501S. Line 3A-1 was shown to specifically recognize autologous B-LCL
5 transduced to express P501S, but not EGFP-transduced autologous B-LCL, as measured by cytotoxicity assays (^{51}Cr release) and interferon-gamma production (Interferon-gamma Elispot; *see* above and Lalvani et al., *J. Exp. Med.* 186:859-865, 1997). The results of these assays are presented in Figures 6A and 6B.

EXAMPLE 10

IDENTIFICATION OF A NATURALLY PROCESSED CTL EPIOTOPE CONTAINED WITHIN A PROSTATE-SPECIFIC ANTIGEN

The 9-mer peptide p5 (SEQ ID NO: 338) was derived from the P703P antigen (also
15 referred to as P20). The p5 peptide is immunogenic in human HLA-A2 donors and is a naturally processed epitope. Antigen specific human CD8+ T cells can be primed following repeated *in vitro* stimulations with monocytes pulsed with p5 peptide. These CTL specifically recognize p5-pulsed and P703P-transduced target cells in both ELISPOT (as described above) and chromium release assays. Additionally, immunization of HLA-A2Kb transgenic mice with p5 leads to the generation
20 of CTL lines which recognize a variety of HLA-A2Kb or HLA-A2 transduced target cells expressing P703P.

Initial studies demonstrating that p5 is a naturally processed epitope were done using HLA-A2Kb transgenic mice. HLA-A2Kb transgenic mice were immunized subcutaneously in the footpad with 100 μg of p5 peptide together with 140 μg of hepatitis B virus core peptide (a Th
25 peptide) in Freund's incomplete adjuvant. Three weeks post immunization, spleen cells from immunized mice were stimulated *in vitro* with peptide-pulsed LPS blasts. CTL activity was assessed by chromium release assay five days after primary *in vitro* stimulation. Retrovirally transduced cells expressing the control antigen P703P and HLA-A2Kb were used as targets. CTL
30 lines that specifically recognized both p5-pulsed targets as well as P703P-expressing targets were identified.

Human *in vitro* priming experiments demonstrated that the p5 peptide is immunogenic in humans. Dendritic cells (DC) were differentiated from monocyte cultures derived

from PBMC of normal human donors by culturing for five days in RPMI medium containing 10% human serum, 50 ng/ml human GM-CSF and 30 ng/ml human IL-4. Following culture, the DC were pulsed with 1 ug/ml p5 peptide and cultured with CD8+ T cell enriched PBMC. CTL lines were restimulated on a weekly basis with p5-pulsed monocytes. Five to six weeks after initiation of the CTL cultures, CTL recognition of p5-pulsed target cells was demonstrated. CTL were additionally shown to recognize human cells transduced to express P703P, demonstrating that p5 is a naturally processed epitope.

EXAMPLE 11

10

EXPRESSION OF A BREAST TUMOR-DERIVED ANTIGEN IN PROSTATE

Isolation of the antigen B305D from breast tumor by differential display is described in US Patent Application No. 08/700,014, filed August 20, 1996. Several different splice forms of this antigen were isolated. The determined cDNA sequences for these splice forms are provided in SEQ ID NO: 366-375, with the predicted amino acid sequences corresponding to the sequences of SEQ ID NO: 292, 298 and 301-303 being provided in SEQ ID NO: 299-306, respectively. In further studies, a splice variant of the cDNA sequence of SEQ ID NO: 366 was isolated which was found to contain an additional guanine residue at position 884 (SEQ ID NO: 530), leading to a frameshift in the open reading frame. The determined DNA sequence of this ORF is provided in SEQ ID NO: 531. This frameshift generates a protein sequence (provided in SEQ ID NO: 532) of 293 amino acids that contains the C-terminal domain common to the other isoforms of B305D but that differs in the N-terminal region.

The expression levels of B305D in a variety of tumor and normal tissues were examined by real time PCR and by Northern analysis. The results indicated that B305D is highly expressed in breast tumor, prostate tumor, normal prostate and normal testes, with expression being low or undetectable in all other tissues examined (colon tumor, lung tumor, ovary tumor, and normal bone marrow, colon, kidney, liver, lung, ovary, skin, small intestine, stomach).

EXAMPLE 12

30

GENERATION OF HUMAN CTL *IN VITRO* USING WHOLE GENE PRIMING AND STIMULATION TECHNIQUES WITH PROSTATE-SPECIFIC ANTIGEN

Using *in vitro* whole-gene priming with P501S-vaccinia infected DC (see, for example, Yee et al, *The Journal of Immunology*, 157(9):4079-86, 1996), human CTL lines were derived that specifically recognize autologous fibroblasts transduced with P501S (also known as L1-12), as determined by interferon- γ ELISPOT analysis as described above. Using a panel of HLA-mismatched B-LCL lines transduced with P501S, these CTL lines were shown to be likely restricted to HLAB class I allele. Specifically, dendritic cells (DC) were differentiated from monocyte cultures derived from PBMC of normal human donors by growing for five days in RPMI medium containing 10% human serum, 50 ng/ml human GM-CSF and 30 ng/ml human IL-4. Following culture, DC were infected overnight with recombinant P501S vaccinia virus at a multiplicity of infection (M.O.I) of five, and matured overnight by the addition of 3 μ g/ml CD40 ligand. Virus was inactivated by UV irradiation. CD8+ T cells were isolated using a magnetic bead system, and priming cultures were initiated using standard culture techniques. Cultures were restimulated every 7-10 days using autologous primary fibroblasts retrovirally transduced with P501S and CD80. Following four stimulation cycles, CD8+ T cell lines were identified that specifically produced interferon- γ when stimulated with P501S and CD80-transduced autologous fibroblasts. A panel of HLA-mismatched B-LCL lines transduced with P501S were generated to define the restriction allele of the response. By measuring interferon- γ in an ELISPOT assay, the P501S specific response was shown to be likely restricted by HLA B alleles. These results demonstrate that a CD8+ CTL response to P501S can be elicited.

To identify the epitope(s) recognized, cDNA encoding P501S was fragmented by various restriction digests, and sub-cloned into the retroviral expression vector pBIB-KS. Retroviral supernatants were generated by transfection of the helper packaging line Phoenix-Ampho. Supernatants were then used to transduce Jurkat/A2Kb cells for CTL screening. CTL were screened in IFN-gamma ELISPOT assays against these A2Kb targets transduced with the "library" of P501S fragments. Initial positive fragments P501S/H3 and P501S/F2 were sequenced and found to encode amino acids 106-553 and amino acids 136-547, respectively, of SEQ ID NO: 113. A truncation of H3 was made to encode amino acid residues 106-351 of SEQ ID NO: 113, which was unable to stimulate the CTL, thus localizing the epitope to amino acid residues 351-547. Additional fragments encoding amino acids 1-472 (Fragment A) and amino acids 1-351 (Fragment B) were also constructed. Fragment A but not Fragment B stimulated the CTL thus localizing the epitope to amino acid residues 351-472. Overlapping 20-mer and 18-mer peptides representing this region were tested by pulsing Jurkat/A2Kb cells versus CTL in an IFN-gamma assay. Only peptides

P501S-369(20) and P501S-369(18) stimulated the CTL. Nine-mer and 10-mer peptides representing this region were synthesized and similarly tested. Peptide P501S-370 (SEQ ID NO: 539) was the minimal 9-mer giving a strong response. Peptide P501S-376 (SEQ ID NO: 540) also gave a weak response, suggesting that it might represent a cross-reactive epitope.

5 In subsequent studies, the ability of primary human B cells transduced with P501S to prime MHC class I-restricted, P501S-specific, autologous CD8 T cells was examined. Primary B cells were derived from PBMC of a homozygous HLA-A2 donor by culture in CD40 ligand and IL-4, transduced at high frequency with recombinant P501S in the vector pBIB, and selected with blastocidin-S. For *in vitro* priming, purified CD8+ T cells were cultured with autologous CD40
10 ligand + IL-4 derived, P501S-transduced B cells in a 96-well microculture format. These CTL microcultures were re-stimulated with P501S-transduced B cells and then assayed for specificity. Following this initial screen, microcultures with significant signal above background were cloned on autologous EBV-transformed B cells (BLCL), also transduced with P501S. Using IFN-gamma ELISPOT for detection, several of these CD8 T cell clones were found to be specific for P501S, as
15 demonstrated by reactivity to BLCL/P501S but not BLCL transduced with control antigen. It was further demonstrated that the anti-P501S CD8 T cell specificity is HLA-A2-restricted. First, antibody blocking experiments with anti-HLA-A,B,C monoclonal antibody (W6.32), anti-HLA-B,C monoclonal antibody (B1.23.2) and a control monoclonal antibody showed that only the anti-HLA-A,B,C antibody blocked recognition of P501S-expressing autologous BLCL. Secondly, the anti-
20 P501S CTL also recognized an HLA-A2 matched, heterologous BLCL transduced with P501S, but not the corresponding EGFP transduced control BLCL.

EXAMPLE 13

IDENTIFICATION OF PROSTATE-SPECIFIC ANTIGENS BY MICROARRAY ANALYSIS

25

This Example describes the isolation of certain prostate-specific polypeptides from a prostate tumor cDNA library.

A human prostate tumor cDNA expression library as described above was screened using microarray analysis to identify clones that display at least a three fold over-expression in
30 prostate tumor and/or normal prostate tissue, as compared to non-prostate normal tissues (not including testis). 372 clones were identified, and 319 were successfully sequenced. Table I presents a summary of these clones, which are shown in SEQ ID NOs:385-400. Of these sequences

SEQ ID NOs:386, 389, 390 and 392 correspond to novel genes, and SEQ ID NOs: 393 and 396 correspond to previously identified sequences. The others (SEQ ID NOs:385, 387, 388, 391, 394, 395 and 397-400) correspond to known sequences, as shown in Table I.

5

Table I

Summary of Prostate Tumor Antigens

Known Genes	Previously Identified Genes	Novel Genes
T-cell gamma chain	P504S	23379 (SEQ ID NO:389)
Kallikrein	P1000C	23399 (SEQ ID NO:392)
Vector	P501S	23320 (SEQ ID NO:386)
CGI-82 protein mRNA (23319; SEQ ID NO:385)	P503S	23381 (SEQ ID NO:390)
PSA	P510S	
Ald. 6 Dehyd.	P784P	
L-Iditol-2 dehydrogenase (23376; SEQ ID NO:388)	P502S	
Ets transcription factor PDEF (22672; SEQ ID NO:398)	P706P	
hTGR (22678; SEQ ID NO:399)	19142.2, bangur.seq (22621; SEQ ID NO:396)	
KIAA0295(22685; SEQ ID NO:400)	5566.1 Wang (23404; SEQ ID NO:393)	
Prostatic Acid Phosphatase(22655; SEQ ID NO:397)	P712P	
transglutaminase (22611; SEQ ID NO:395)	P778P	
HDLBP (23508; SEQ ID NO:394)		
CGI-69 Protein(23367; SEQ ID NO:387)		
KIAA0122(23383; SEQ ID NO:391)		
TEEG		

CGI-82 showed 4.06 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 43% of prostate tumors, 25% normal prostate, not detected in other normal tissues tested. L-iditol-2 dehydrogenase showed 4.94 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 90% of prostate tumors, 100% of normal prostate, and not detected in other normal tissues tested. Ets transcription factor PDEF showed 5.55 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 47% prostate tumors, 25% normal prostate and not detected in other normal tissues tested. hTGR1 showed 9.11 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 63% of prostate tumors and is not detected in normal tissues tested including normal prostate. KIAA0295 showed 5.59 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 47% of prostate tumors, low to undetectable in normal tissues tested including normal prostate tissues. Prostatic acid phosphatase showed 9.14 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 67% of prostate tumors, 50% of normal prostate, and not detected in other normal tissues tested. Transglutaminase showed 14.84 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 30% of prostate tumors, 50% of normal prostate, and is not detected in other normal tissues tested. High density lipoprotein binding protein (HDLBP) showed 28.06 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 97% of prostate tumors, 75% of normal prostate, and is undetectable in all other normal tissues tested. CGI-69 showed 3.56 fold over-expression in prostate tissues as compared to other normal tissues tested. It is a low abundant gene, detected in more than 90% of prostate tumors, and in 75% normal prostate tissues. The expression of this gene in normal tissues was very low. KIAA0122 showed 4.24 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 57% of prostate tumors, it was undetectable in all normal tissues tested including normal prostate tissues. 19142.2 bangur showed 23.25 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 97% of prostate tumors and 100% of normal prostate. It was undetectable in other normal tissues tested. 5566.1 Wang showed 3.31 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 97% of prostate tumors, 75% normal prostate and was also over-expressed in normal bone marrow, pancreas, and activated PBMC. Novel clone 23379 showed 4.86 fold over-expression in prostate tissues as compared to other normal tissues tested. It was detectable in 97%

of prostate tumors and 75% normal prostate and is undetectable in all other normal tissues tested. Novel clone 23399 showed 4.09 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 27% of prostate tumors and was undetectable in all normal tissues tested including normal prostate tissues. Novel clone 23320 showed 3.15 fold over-expression in prostate tissues as compared to other normal tissues tested. It was detectable in all prostate tumors and 50% of normal prostate tissues. It was also expressed in normal colon and trachea. Other normal tissues do not express this gene at high level.

EXAMPLE 14

IDENTIFICATION OF PROSTATE-SPECIFIC ANTIGENS BY ELECTRONIC SUBTRACTION

This Example describes the use of an electronic subtraction technique to identify prostate-specific antigens.

Potential prostate-specific genes present in the GenBank human EST database were identified by electronic subtraction (similar to that described by Vasmatizis et al., *Proc. Natl. Acad. Sci. USA* 95:300-304, 1998). The sequences of EST clones (43,482) derived from various prostate libraries were obtained from the GenBank public human EST database. Each prostate EST sequence was used as a query sequence in a BLASTN (National Center for Biotechnology Information) search against the human EST database. All matches considered identical (length of matching sequence >100 base pairs, density of identical matches over this region > 70%) were grouped (aligned) together in a cluster. Clusters containing more than 200 ESTs were discarded since they probably represented repetitive elements or highly expressed genes such as those for ribosomal proteins. If two or more clusters shared common ESTs, those clusters were grouped together into a "supercluster," resulting in 4,345 prostate superclusters.

Records for the 479 human cDNA libraries represented in the GenBank release were downloaded to create a database of these cDNA library records. These 479 cDNA libraries were grouped into three groups: Plus (normal prostate and prostate tumor libraries, and breast cell line libraries, in which expression was desired), Minus (libraries from other normal adult tissues, in which expression was not desirable), and Other (libraries from fetal tissue, infant tissue, tissues found only in women, non-prostate tumors and cell lines other than prostate cell lines, in which

expression was considered to be irrelevant). A summary of these library groups is presented in Table II.

Table II

Prostate cDNA Libraries and ESTs

Library	# of Libraries	# of ESTs
Plus	25	43,482
Normal	11	18,875
Tumor	11	21,769
Cell lines	3	2,838
Minus	166	
Other	287	

Each supercluster was analyzed in terms of the ESTs within the supercluster. The tissue source of each EST clone was noted and used to classify the superclusters into four groups:

10 Type 1- EST clones found in the Plus group libraries only; no expression detected in Minus or Other group libraries; Type 2- EST clones derived from the Plus and Other group libraries only; no expression detected in the Minus group; Type 3- EST clones derived from the Plus, Minus and Other group libraries, but the number of ESTs derived from the Plus group is higher than in either the Minus or Other groups; and Type 4- EST clones derived from Plus, Minus and Other group

15 libraries, but the number derived from the Plus group is higher than the number derived from the Minus group. This analysis identified 4,345 breast clusters (*see* Table III). From these clusters, 3,172 EST clones were ordered from Research Genetics, Inc., and were received as frozen glycerol stocks in 96-well plates.

Table III
Prostate Cluster Summary

Type	# of Superclusters	# of ESTs Ordered
1	688	677
2	2899	2484
3	85	11
4	673	0
Total	4345	3172

The EST clone inserts were PCR-amplified using amino-linked PCR primers for Synteni microarray analysis. When more than one PCR product was obtained for a particular clone, that PCR product was not used for expression analysis. In total, 2,528 clones from the electronic subtraction method were analyzed by microarray analysis to identify electronic subtraction breast clones that had high levels of tumor vs. normal tissue mRNA. Such screens were performed using a Synteni (Palo Alto, CA) microarray, according to the manufacturer's instructions (and essentially as described by Schena et al., *Proc. Natl. Acad. Sci. USA* 93:10614-10619, 1996 and Heller et al., *Proc. Natl. Acad. Sci. USA* 94:2150-2155, 1997). Within these analyses, the clones were arrayed on the chip, which was then probed with fluorescent probes generated from normal and tumor prostate cDNA, as well as various other normal tissues. The slides were scanned and the fluorescence intensity was measured.

Clones with an expression ratio greater than 3 (*i.e.*, the level in prostate tumor and normal prostate mRNA was at least three times the level in other normal tissue mRNA) were identified as prostate tumor-specific sequences (Table IV). The sequences of these clones are provided in SEQ ID NO: 401-453, with certain novel sequences shown in SEQ ID NO: 407, 413, 416-419, 422, 426, 427 and 450.

Table IV
Prostate-tumor Specific Clones

SEQ ID NO.	Sequence Designation	Comments
401	22545	previously identified P1000C
402	22547	previously identified P704P
403	22548	known
404	22550	known
405	22551	PSA
406	22552	prostate secretory protein 94
407	22553	novel
408	22558	previously identified P509S
409	22562	glandular kallikrein
410	22565	previously identified P1000C
411	22567	PAP
412	22568	B1006C (breast tumor antigen)
413	22570	novel
414	22571	PSA
415	22572	previously identified P706P
416	22573	novel
417	22574	novel
418	22575	novel
419	22580	novel
420	22581	PAP
421	22582	prostatic secretory protein 94
422	22583	novel
423	22584	prostatic secretory protein 94
424	22585	prostatic secretory protein 94
425	22586	known
426	22587	novel
427	22588	novel
428	22589	PAP
429	22590	known
430	22591	PSA
431	22592	known
432	22593	Previously identified P777P
433	22594	T cell receptor gamma chain
434	22595	Previously identified P705P
435	22596	Previously identified P707P
436	22847	PAP
437	22848	known
438	22849	prostatic secretory protein 57
439	22851	PAP

440	22852	PAP
441	22853	PAP
442	22854	previously identified P509S
443	22855	previously identified P705P
444	22856	previously identified P774P
445	22857	PSA
446	23601	previously identified P777P
447	23602	PSA
448	23605	PSA
449	23606	PSA
450	23612	novel
451	23614	PSA
452	23618	previously identified P1000C
453	23622	previously identified P705P

EXAMPLE 15

FURTHER IDENTIFICATION OF PROSTATE-SPECIFIC ANTIGENS BY MICROARRAY
ANALYSIS

5

This Example describes the isolation of additional prostate-specific polypeptides from a prostate tumor cDNA library.

A human prostate tumor cDNA expression library as described above was screened
10 using microarray analysis to identify clones that display at least a three fold over-expression in prostate tumor and/or normal prostate tissue, as compared to non-prostate normal tissues (not including testis). 142 clones were identified and sequenced. Certain of these clones are shown in SEQ ID NO: 454-467. Of these sequences, SEQ ID NO: 459-461 represent novel genes. The others (SEQ ID NO: 454-458 and 461-467) correspond to known sequences.

15

EXAMPLE 16

FURTHER CHARACTERIZATION OF PROSTATE-SPECIFIC ANTIGEN P710P

20

This Example describes the full length cloning of P710P.

The prostate cDNA library described above was screened with the P710P fragment described above. One million colonies were plated on LB/Ampicillin plates. Nylon membrane

filters were used to lift these colonies, and the cDNAs picked up by these filters were then denatured and cross-linked to the filters by UV light. The P710P fragment was radiolabeled and used to hybridize with the filters. Positive cDNA clones were selected and their cDNAs recovered and sequenced by an automatic Perkin Elmer/Applied Biosystems Division Sequencer. Four sequences were obtained, and are presented in SEQ ID NO: 468-471. These sequences appear to represent different splice variants of the P710P gene.

EXAMPLE 17

PROTEIN EXPRESSION OF THE PROSTATE-SPECIFIC ANTIGEN P501S

This example describes the expression and purification of the prostate-specific antigen P501S in *E. coli*, baculovirus and mammalian cells.

a) Expression in *E. coli*

Expression of the full-length form of P501S was attempted by first cloning P501S without the leader sequence (amino acids 36-553 of SEQ ID NO: 113) downstream of the first 30 amino acids of the *M. tuberculosis* antigen Ra12 (SEQ ID NO: 484) in pET17b. Specifically, P501S DNA was used to perform PCR using the primers AW025 (SEQ ID NO: 485) and AW003 (SEQ ID NO: 486). AW025 is a sense cloning primer that contains a HindIII site. AW003 is an antisense cloning primer that contains an EcoRI site. DNA amplification was performed using 5 µl 10X Pfu buffer, 1 µl 20 mM dNTPs, 1 µl each of the PCR primers at 10 µM concentration, 40 µl water, 1 µl Pfu DNA polymerase (Stratagene, La Jolla, CA) and 1 µl DNA at 100 ng/µl. Denaturation at 95°C was performed for 30 sec, followed by 10 cycles of 95°C for 30 sec, 60°C for 1 min and by 72°C for 3 min. 20 cycles of 95°C for 30 sec, 65°C for 1 min and by 72°C for 3 min, and lastly by 1 cycle of 72°C for 10 min. The PCR product was cloned to Ra12m/pET17b using HindIII and EcoRI. The sequence of the resulting fusion construct (referred to as Ra12-P501S-F) was confirmed by DNA sequencing.

The fusion construct was transformed into BL21(DE3)pLysE, pLysS and CodonPlus *E. coli* (Stratagene) and grown overnight in LB broth with kanamycin. The resulting culture was induced with IPTG. Protein was transferred to PVDF membrane and blocked with 5% non-fat milk (in PBS-Tween buffer), washed three times and incubated with mouse anti-His tag antibody (Clontech) for 1 hour. The membrane was washed 3 times and probed with HRP-Protein A

(Zymed) for 30 min. Finally, the membrane was washed 3 times and developed with ECL (Amersham). No expression was detected by Western blot. Similarly, no expression was detected by Western blot when the Ra12-P501S-F fusion was used for expression in BL21CodonPlus by CE6 phage (Invitrogen).

5 An N-terminal fragment of P501S (amino acids 36-325 of SEQ ID NO: 113) was cloned down-stream of the first 30 amino acids of the *M. tuberculosis* antigen Ra12 in pET17b as follows. P501S DNA was used to perform PCR using the primers AW025 (SEQ ID NO: 485) and AW027 (SEQ ID NO: 487). AW027 is an antisense cloning primer that contains an EcoRI site and a stop codon. DNA amplification was performed essentially as described above. The resulting PCR
10 product was cloned to Ra12 in pET17b at the HindIII and EcoRI sites. The fusion construct (referred to as Ra12-P501S-N) was confirmed by DNA sequencing.

The Ra12-P501S-N fusion construct was used for expression in BL21(DE3)pLysE, pLysS and CodonPlus, essentially as described above. Using Western blot analysis, protein bands were observed at the expected molecular weight of 36 kDa. Some high molecular weight bands
15 were also observed, probably due to aggregation of the recombinant protein. No expression was detected by Western blot when the Ra12-P501S-F fusion was used for expression in BL21CodonPlus by CE6 phage.

A fusion construct comprising a C-terminal portion of P501S (amino acids 257-553 of SEQ ID NO: 113) located down-stream of the first 30 amino acids of the *M. tuberculosis* antigen
20 Ra12 (SEQ ID NO: 484) was prepared as follows. P501S DNA was used to perform PCR using the primers AW026 (SEQ ID NO: 488) and AW003 (SEQ ID NO: 486). AW026 is a sense cloning primer that contains a HindIII site. DNA amplification was performed essentially as described above. The resulting PCR product was cloned to Ra12 in pET17b at the HindIII and EcoRI sites. The sequence for the fusion construct (referred to as Ra12-P501S-C) was confirmed.

25 The Ra12-P501S-C fusion construct was used for expression in BL21(DE3)pLysE, pLysS and CodonPlus, as described above. A small amount of protein was detected by Western blot, with some molecular weight aggregates also being observed. Expression was also detected by Western blot when the Ra12-P501S-C fusion was used for expression in BL21CodonPlus induced by CE6 phage.

b) Expression of P501S in Baculovirus

The Bac-to-Bac baculovirus expression system (BRL Life Technologies, Inc.) was used to express P501S protein in insect cells. Full-length P501S (SEQ ID NO: 113) was amplified by PCR and cloned into the XbaI site of the donor plasmid pFastBacI. The recombinant bacmid and baculovirus were prepared according to the manufacturer's instructions. The recombinant baculovirus was amplified in Sf9 cells and the high titer viral stocks were utilized to infect High Five cells (Invitrogen) to make the recombinant protein. The identity of the full-length protein was confirmed by N-terminal sequencing of the recombinant protein and by Western blot analysis (Figure 7). Specifically, 0.6 million High Five cells in 6-well plates were infected with either the unrelated control virus BV/ECD_PD (lane 2), with recombinant baculovirus for P501S at different amounts or MOIs (lanes 4-8), or were uninfected (lane 3). Cell lysates were run on SDS-PAGE under reducing conditions and analyzed by Western blot with the anti-P501S monoclonal antibody P501S-10E3-G4D3 (prepared as described below). Lane 1 is the biotinylated protein molecular weight marker (BioLabs).

The localization of recombinant P501S in the insect cells was investigated as follows. The insect cells overexpressing P501S were fractionated into fractions of nucleus, mitochondria, membrane and cytosol. Equal amounts of protein from each fraction were analyzed by Western blot with a monoclonal antibody against P501S. Due to the scheme of fractionation, both nucleus and mitochondria fractions contain some plasma membrane components. However, the membrane fraction is basically free from mitochondria and nucleus. P501S was found to be present in all fractions that contain the membrane component, suggesting that P501S may be associated with plasma membrane of the insect cells expressing the recombinant protein.

c) Expression of P501S in mammalian cells

Full-length P501S (553AA) was cloned into various mammalian expression vectors, including pCEP4 (Invitrogen), pVR1012 (Vical, San Diego, CA) and a modified form of the retroviral vector pBMN, referred to as pBIB. Transfection of P501S/pCEP4 and P501S/pVR1012 into HEK293 fibroblasts was carried out using the Fugene transfection reagent (Boehringer Mannheim). Briefly, 2 ul of Fugene reagent was diluted into 100 ul of serum-free media and incubated at room temperature for 5-10 min. This mixture was added to 1 ug of P501S plasmid DNA, mixed briefly and incubated for 30 minutes at room temperature. The Fugene/DNA mixture

was added to cells and incubated for 24-48 hours. Expression of recombinant P501S in transfected HEK293 fibroblasts was detected by means of Western blot employing a monoclonal antibody to P501S.

Transfection of p501S/pCEP4 into CHO-K cells (American Type Culture Collection, Rockville, MD) was carried out using GenePorter transfection reagent (Gene Therapy Systems, San Diego, CA). Briefly, 15 μ l of GenePorter was diluted in 500 μ l of serum-free media and incubated at room temperature for 10 min. The GenePorter/media mixture was added to 2 μ g of plasmid DNA that was diluted in 500 μ l of serum-free media, mixed briefly and incubated for 30 min at room temperature. CHO-K cells were rinsed in PBS to remove serum proteins, and the GenePorter/DNA mix was added and incubated for 5 hours. The transfected cells were then fed an equal volume of 2x media and incubated for 24-48 hours.

FACS analysis of P501S transiently infected CHO-K cells, demonstrated surface expression of P501S. Expression was detected using rabbit polyclonal antisera raised against a P501S peptide, as described below. Flow cytometric analysis was performed using a FaCScan (Becton Dickinson), and the data were analyzed using the Cell Quest program.

EXAMPLE 18

PREPARATION AND CHARACTERIZATION OF ANTIBODIES AGAINST PROSTATE-SPECIFIC POLYPEPTIDES

a) Preparation and Characterization of Antibodies against P501S

A murine monoclonal antibody directed against the carboxy-terminus of the prostate-specific antigen P501S was prepared as follows.

A truncated fragment of P501S (amino acids 355-526 of SEQ ID NO: 113) was generated and cloned into the pET28b vector (Novagen) and expressed in *E. coli* as a thioredoxin fusion protein with a histidine tag. The trx-P501S fusion protein was purified by nickel chromatography, digested with thrombin to remove the trx fragment and further purified by an acid precipitation procedure followed by reverse phase HPLC.

Mice were immunized with truncated P501S protein. Serum bleeds from mice that potentially contained anti-P501S polyclonal sera were tested for P501S-specific reactivity using ELISA assays with purified P501S and trx-P501S proteins. Serum bleeds that appeared to react specifically with P501S were then screened for P501S reactivity by Western analysis. Mice that contained a P501S-specific antibody component were sacrificed and spleen cells were used to

generate anti-P501S antibody producing hybridomas using standard techniques. Hybridoma supernatants were tested for P501S-specific reactivity initially by ELISA, and subsequently by FACS analysis of reactivity with P501S transduced cells. Based on these results, a monoclonal hybridoma referred to as 10E3 was chosen for further subcloning. A number of subclones were generated, tested for specific reactivity to P501S using ELISA and typed for IgG isotype. The results of this analysis are shown below in Table V. Of the 16 subclones tested, the monoclonal antibody 10E3-G4-D3 was selected for further study.

Table V

Isotype analysis of murine anti-P501S monoclonal antibodies

Hybridoma clone	Isotype	Estimated [Ig] in supernatant (µg/ml)
4D11	IgG1	14.6
1G1	IgG1	0.6
4F6	IgG1	72
4H5	IgG1	13.8
4H5-E12	IgG1	10.7
4H5-EH2	IgG1	9.2
4H5-H2-A10	IgG1	10
4H5-H2-A3	IgG1	12.8
4H5-H2-A10-G6	IgG1	13.6
4H5-H2-B11	IgG1	12.3
10E3	IgG2a	3.4
10E3-D4	IgG2a	3.8
10E3-D4-G3	IgG2a	9.5
10E3-D4-G6	IgG2a	10.4
10E3-E7	IgG2a	6.5
8H12	IgG2a	0.6

The specificity of 10E3-G4-D3 for P501S was examined by FACS analysis. Specifically, cells were fixed (2% formaldehyde, 10 minutes), permeabilized (0.1% saponin, 10 minutes) and stained with 10E3-G4-D3 at 0.5 – 1 µg/ml, followed by incubation with a secondary, FITC-conjugated goat anti-mouse Ig antibody (Pharmingen, San Diego, CA). Cells were then analyzed for FITC fluorescence using an Excalibur fluorescence activated cell sorter. For FACS analysis of transduced cells, B-LCL were retrovirally transduced with P501S. For analysis of infected cells, B-LCL were infected with a vaccinia vector that expresses P501S. To demonstrate

specificity in these assays, B-LCL transduced with a different antigen (P703P) and uninfected B-LCL vectors were utilized. 10E3-G4-D3 was shown to bind with P501S-transduced B-LCL and also with P501S-infected B-LCL, but not with either uninfected cells or P703P-transduced cells.

To determine whether the epitope recognized by 10E3-G4-D3 was found on the surface or in an intracellular compartment of cells, B-LCL were transduced with P501S or HLA-B8 as a control antigen and either fixed and permeabilized as described above or directly stained with 10E3-G4-D3 and analyzed as above. Specific recognition of P501S by 10E3-G4-D3 was found to require permeabilization, suggesting that the epitope recognized by this antibody is intracellular.

The reactivity of 10E3-G4-D3 with the three prostate tumor cell lines Lncap, PC-3 and DU-145, which are known to express high, medium and very low levels of P501S, respectively, was examined by permeabilizing the cells and treating them as described above. Higher reactivity of 10E3-G4-D3 was seen with Lncap than with PC-3, which in turn showed higher reactivity than DU-145. These results are in agreement with the real time PCR and demonstrate that the antibody specifically recognizes P501S in these tumor cell lines and that the epitope recognized in prostate tumor cell lines is also intracellular.

Specificity of 10E3-G4-D3 for P501S was also demonstrated by Western blot analysis. Lysates from the prostate tumor cell lines Lncap, DU-145 and PC-3, from P501S-transiently transfected HEK293 cells, and from non-transfected HEK293 cells were generated. Western blot analysis of these lysates with 10E3-G4-D3 revealed a 46 kDa immunoreactive band in Lncap, PC-3 and P501S-transfected HEK cells, but not in DU-145 cells or non-transfected HEK293 cells. P501S mRNA expression is consistent with these results since semi-quantitative PCR analysis revealed that P501S mRNA is expressed in Lncap, to a lesser but detectable level in PC-3 and not at all in DU-145 cells. Bacterially expressed and purified recombinant P501S (referred to as P501SStr2) was recognized by 10E3-G4-D3 (24 kDa), as was full-length P501S that was transiently expressed in HEK293 cells using either the expression vector VR1012 or pCEP4. Although the predicted molecular weight of P501S is 60.5 kDa, both transfected and "native" P501S run at a slightly lower mobility due to its hydrophobic nature.

Immunohistochemical analysis was performed on prostate tumor and a panel of normal tissue sections (prostate, adrenal, breast, cervix, colon, duodenum, gall bladder, ileum, kidney, ovary, pancreas, parotid gland, skeletal muscle, spleen and testis). Tissue samples were fixed in formalin solution for 24 hours and embedded in paraffin before being sliced into 10 micron sections. Tissue sections were permeabilized and incubated with 10E3-G4-D3 antibody for 1 hr.

HRP-labeled anti-mouse followed by incubation with DAB chromogen was used to visualize P501S immunoreactivity. P501S was found to be highly expressed in both normal prostate and prostate tumor tissue but was not detected in any of the other tissues tested.

To identify the epitope recognized by 10E3-G4-D3, an epitope mapping approach was pursued. A series of 13 overlapping 20-21 mers (5 amino acid overlap; SEQ ID NO: 489-501) was synthesized that spanned the fragment of P501S used to generate 10E3-G4-D3. Flat bottom 96 well microtiter plates were coated with either the peptides or the P501S fragment used to immunize mice, at 1 microgram/ml for 2 hours at 37 °C. Wells were then aspirated and blocked with phosphate buffered saline containing 1% (w/v) BSA for 2 hours at room temperature, and subsequently washed in PBS containing 0.1% Tween 20 (PBST). Purified antibody 10E3-G4-D3 was added at 2 fold dilutions (1000 ng – 16 ng) in PBST and incubated for 30 minutes at room temperature. This was followed by washing 6 times with PBST and subsequently incubating with HRP-conjugated donkey anti-mouse IgG (H+L) Affinipure F(ab') fragment (Jackson Immunoresearch, West Grove, PA) at 1:20000 for 30 minutes. Plates were then washed and incubated for 15 minutes in tetramethyl benzidine. Reactions were stopped by the addition of 1N sulfuric acid and plates were read at 450 nm using an ELISA plate reader. As shown in Fig. 8, reactivity was seen with the peptide of SEQ ID NO: 496 (corresponding to amino acids 439-459 of P501S) and with the P501S fragment but not with the remaining peptides, demonstrating that the epitope recognized by 10E3-G4-D3 is localized to amino acids 439-459 of SEQ ID NO: 113.

In order to further evaluate the tissue specificity of P501S, multi-array immunohistochemical analysis was performed on approximately 4700 different human tissues encompassing all the major normal organs as well as neoplasias derived from these tissues. Sixty-five of these human tissue samples were of prostate origin. Tissue sections 0.6 mm in diameter were formalin-fixed and paraffin embedded. Samples were pretreated with HIER using 10 mM citrate buffer pH 6.0 and boiling for 10 min. Sections were stained with 10E3-G4-D3 and P501S immunoreactivity was visualized with HRP. All the 65 prostate tissues samples (5 normal, 55 untreated prostate tumors, 5 hormone refractory prostate tumors) were positive, showing distinct perinuclear staining. All other tissues examined were negative for P501S expression.

b) Preparation and Characterization of Antibodies against P503S

A fragment of P503S (amino acids 113-241 of SEQ ID NO: 114) was expressed and purified from bacteria essentially as described above for P501S and used to immunize both rabbits

and mice. Mouse monoclonal antibodies were isolated using standard hybridoma technology as described above. Rabbit monoclonal antibodies were isolated using Selected Lymphocyte Antibody Method (SLAM) technology at Immgenics Pharmaceuticals (Vancouver, BC, Canada). Table VI, below, lists the monoclonal antibodies that were developed against P503S.

5

Table VI

Antibody	Species
20D4	Rabbit
JA1	Rabbit
1A4	Mouse
1C3	Mouse
1C9	Mouse
1D12	Mouse
2A11	Mouse
2H9	Mouse
4H7	Mouse
8A8	Mouse
8D10	Mouse
9C12	Mouse
6D12	Mouse

The DNA sequences encoding the complementarity determining regions (CDRs) for the rabbit monoclonal antibodies 20D4 and JA1 were determined and are provided in SEQ ID NO: 502 and 503, respectively.

In order to better define the epitope binding region of each of the antibodies, a series of overlapping peptides were generated that span amino acids 109-213 of SEQ ID NO: 114. These peptides were used to epitope map the anti-P503S monoclonal antibodies by ELISA as follows.

The recombinant fragment of P503S that was employed as the immunogen was used as a positive control. Ninety-six well microtiter plates were coated with either peptide or recombinant antigen at 20 ng/well overnight at 4 °C. Plates were aspirated and blocked with phosphate buffered saline containing 1% (w/v) BSA for 2 hours at room temperature then washed in PBS containing 0.1% Tween 20 (PBST). Purified rabbit monoclonal antibodies diluted in PBST were added to the wells and incubated for 30 min at room temperature. This was followed by washing 6 times with PBST and incubation with Protein-A HRP conjugate at a 1:2000 dilution for a further 30 min. Plates were washed six times in PBST and incubated with tetramethylbenzidine (TMB) substrate for a further

15 min. The reaction was stopped by the addition of 1N sulfuric acid and plates were read at 450 nm using at ELISA plate reader. ELISA with the mouse monoclonal antibodies was performed with supernatants from tissue culture run neat in the assay.

All of the antibodies bound to the recombinant P503S fragment, with the exception
5 of the negative control SP2 supernatant. 20D4, JA1 and 1D12 bound strictly to peptide #2101 (SEQ ID NO: 504), which corresponds to amino acids 151-169 of SEQ ID NO: 114. 1C3 bound to peptide #2102 (SEQ ID NO: 505), which corresponds to amino acids 165-184 of SEQ ID NO: 114. 9C12 bound to peptide #2099 (SEQ ID NO: 522), which corresponds to amino acids 120-139 of SEQ ID NO: 114. The other antibodies bind to regions that were not examined in these studies.

10 Subsequent to epitope mapping, the antibodies were tested by FACS analysis on a cell line that stably expressed P503S to confirm that the antibodies bind to cell surface epitopes. Cells stably transfected with a control plasmid were employed as a negative control. Cells were stained live with no fixative. 0.5 ug of anti-P503S monoclonal antibody was added and cells were incubated on ice for 30 min before being washed twice and incubated with a FITC-labelled goat
15 anti-rabbit or mouse secondary antibody for 20 min. After being washed twice, cells were analyzed with an Excalibur fluorescent activated cell sorter. The monoclonal antibodies 1C3, 1D12, 9C12, 20D4 and JA1, but not 8D3, were found to bind to a cell surface epitope of P503S.

In order to determine which tissues express P503S, immunohistochemical analysis was performed, essentially as described above, on a panel of normal tissues (prostate, adrenal,
20 breast, cervix, colon, duodenum, gall bladder, ileum, kidney, ovary, pancreas, parotid gland, skeletal muscle, spleen and testis). HRP-labeled anti-mouse or anti-rabbit antibody followed by incubation with TMB was used to visualize P503S immunoreactivity. P503S was found to be highly expressed in prostate tissue, with lower levels of expression being observed in cervix, colon, ileum and kidney, and no expression being observed in adrenal, breast, duodenum, gall bladder, ovary,
25 pancreas, parotid gland, skeletal muscle, spleen and testis.

Western blot analysis was used to characterize anti-P503S monoclonal antibody specificity. SDS-PAGE was performed on recombinant (rec) P503S expressed in and purified from bacteria and on lysates from HEK293 cells transfected with full length P503S. Protein was transferred to nitrocellulose and then Western blotted with each of the anti-P503S monoclonal
30 antibodies (20D4, JA1, 1D12, 6D12 and 9C12) at an antibody concentration of 1 ug/ml. Protein was detected using horse radish peroxidase (HRP) conjugated to either a goat anti-mouse monoclonal antibody or to protein A-sepharose. The monoclonal antibody 20D4 detected the

appropriate molecular weight 14 kDa recombinant P503S (amino acids 113-241) and the 23.5 kDa species in the HEK293 cell lysates transfected with full length P503S. Other anti-P503S monoclonal antibodies displayed similar specificity by Western blot.

5 **c) Preparation and Characterization of Antibodies against P703P**

Rabbits were immunized with either a truncated (P703Ptrl; SEQ ID NO: 172) or full-length mature form (P703Pfl; SEQ ID NO: 523) of recombinant P703P protein was expressed in and purified from bacteria as described above. Affinity purified polyclonal antibody was generated using immunogen P703Pfl or P703Ptrl attached to a solid support. Rabbit monoclonal
10 antibodies were isolated using SLAM technology at Immgenics Pharmaceuticals. Table VII below lists both the polyclonal and monoclonal antibodies that were generated against P703P.

Table VII

Antibody	Immunogen	Species/type
Aff. Purif. P703P (truncated); #2594	P703Ptrl	Rabbit polyclonal
Aff. Purif. P703P (full length); #9245	P703Pfl	Rabbit polyclonal
2D4	P703Ptrl	Rabbit monoclonal
8H2	P703Ptrl	Rabbit monoclonal
7H8	P703Ptrl	Rabbit monoclonal

15

The DNA sequences encoding the complementarity determining regions (CDRs) for the rabbit monoclonal antibodies 8H2, 7H8 and 2D4 were determined and are provided in SEQ ID NO: 506-508, respectively.

Epitope mapping studies were performed as described above. Monoclonal
20 antibodies 2D4 and 7H8 were found to specifically bind to the peptides of SEQ ID NO: 509 (corresponding to amino acids 145-159 of SEQ ID NO: 172) and SEQ ID NO: 510 (corresponding to amino acids 11-25 of SEQ ID NO: 172), respectively. The polyclonal antibody 2594 was found to bind to the peptides of SEQ ID NO: 511-514, with the polyclonal antibody 9427 binding to the peptides of SEQ ID NO: 515-517.

25 The specificity of the anti-P703P antibodies was determined by Western blot analysis as follows. SDS-PAGE was performed on (1) bacterially expressed recombinant antigen; (2) lysates of HEK293 cells and Ltk^{-/-} cells either untransfected or transfected with a plasmid

expressing full length P703P; and (3) supernatant isolated from these cell cultures. Protein was transferred to nitrocellulose and then Western blotted using the anti-P703P polyclonal antibody #2594 at an antibody concentration of 1 ug/ml. Protein was detected using horse radish peroxidase (HRP) conjugated to an anti-rabbit antibody. A 35 kDa immunoreactive band could be observed with recombinant P703P. Recombinant P703P runs at a slightly higher molecular weight since it is epitope tagged. In lysates and supernatants from cells transfected with full length P703P, a 30 kDa band corresponding to P703P was observed. To assure specificity, lysates from HEK293 cells stably transfected with a control plasmid were also tested and were negative for P703P expression. Other anti-P703P antibodies showed similar results.

Immunohistochemical studies were performed as described above, using anti-P703P monoclonal antibody. P703P was found to be expressed at high levels in normal prostate and prostate tumor tissue but was not detectable in all other tissues tested (breast tumor, lung tumor and normal kidney).

EXAMPLE 19

CHARACTERIZATION OF CELL SURFACE EXPRESSION AND CHROMOSOME LOCALIZATION OF THE PROSTATE-SPECIFIC ANTIGEN P501S

This example describes studies demonstrating that the prostate-specific antigen P501S is expressed on the surface of cells, together with studies to determine the probable chromosomal location of P501S.

The protein P501S (SEQ ID NO: 113) is predicted to have 11 transmembrane domains. Based on the discovery that the epitope recognized by the anti-P501S monoclonal antibody 10E3-G4-D3 (described above in Example 17) is intracellular, it was predicted that following transmembrane determinants would allow the prediction of extracellular domains of P501S. Fig. 9 is a schematic representation of the P501S protein showing the predicted location of the transmembrane domains and the intracellular epitope described in Example 17. Underlined sequence represents the predicted transmembrane domains, bold sequence represents the predicted extracellular domains, and italicized sequence represents the predicted intracellular domains. Sequence that is both bold and underlined represents sequence employed to generate polyclonal rabbit serum. The location of the transmembrane domains was predicted using HHMTOP as

described by Tusnady and Simon (Principles Governing Amino Acid Composition of Integral Membrane Proteins: Applications to Topology Prediction, *J. Mol. Biol.* 283:489-506, 1998).

Based on Fig. 9, the P501S domain flanked by the transmembrane domains corresponding to amino acids 274-295 and 323-342 is predicted to be extracellular. The peptide of SEQ ID NO: 518 corresponds to amino acids 306-320 of P501S and lies in the predicted extracellular domain. The peptide of SEQ ID NO: 519, which is identical to the peptide of SEQ ID NO: 518 with the exception of the substitution of the histidine with an asparagine, was synthesized as described above. A Cys-Gly was added to the C-terminus of the peptide to facilitate conjugation to the carrier protein. Cleavage of the peptide from the solid support was carried out using the following cleavage mixture: trifluoroacetic acid:ethanediol:thioanisole:water:phenol (40:1:2:2:3). After cleaving for two hours, the peptide was precipitated in cold ether. The peptide pellet was then dissolved in 10% v/v acetic acid and lyophilized prior to purification by C18 reverse phase hplc. A gradient of 5-60% acetonitrile (containing 0.05% TFA) in water (containing 0.05% TFA) was used to elute the peptide. The purity of the peptide was verified by hplc and mass spectrometry, and was determined to be >95%. The purified peptide was used to generate rabbit polyclonal antisera as described above.

Surface expression of P501S was examined by FACS analysis. Cells were stained with the polyclonal anti-P501S peptide serum at 10 µg/ml, washed, incubated with a secondary FITC-conjugated goat anti-rabbit Ig antibody (ICN), washed and analyzed for FITC fluorescence using an Excalibur fluorescence activated cell sorter. For FACS analysis of transduced cells, B-LCL were retrovirally transduced with P501S. To demonstrate specificity in these assays, B-LCL transduced with an irrelevant antigen (P703P) or nontransduced were stained in parallel. For FACS analysis of prostate tumor cell lines, Lncap, PC-3 and DU-145 were utilized. Prostate tumor cell lines were dissociated from tissue culture plates using cell dissociation medium and stained as above. All samples were treated with propidium iodide (PI) prior to FACS analysis, and data was obtained from PI-excluding (i.e. intact and non-permeabilized) cells. The rabbit polyclonal serum generated against the peptide of SEQ ID NO: 519 was shown to specifically recognize the surface of cells transduced to express P501S, demonstrating that the epitope recognized by the polyclonal serum is extracellular.

To determine biochemically if P501S is expressed on the cell surface, peripheral membranes from Lncap cells were isolated and subjected to Western blot analysis. Specifically, Lncap cells were lysed using a dounce homogenizer in 5 ml of homogenization buffer (250 mM

sucrose, 10 mM HEPES, 1mM EDTA, pH 8.0, 1 complete protease inhibitor tablet (Boehringer Mannheim)). Lysate samples were spun at 1000 g for 5 min at 4 °C. The supernatant was then spun at 8000g for 10 min at 4 °C. Supernatant from the 8000g spin was recovered and subjected to a 100,000g spin for 30 min at 4 °C to recover peripheral membrane. Samples were then separated by SDS-PAGE and Western blotted with the mouse monoclonal antibody 10E3-G4-D3 (described above in Example 17) using conditions described above. Recombinant purified P501S, as well as HEK293 cells transfected with and over-expressing P501S were included as positive controls for P501S detection. LCL cell lysate was included as a negative control. P501S could be detected in Lncap total cell lysate, the 8000g (internal membrane) fraction and also in the 100,000g (plasma membrane) fraction. These results indicate that P501S is expressed at, and localizes to, the peripheral membrane.

To demonstrate that the rabbit polyclonal antiserum generated to the peptide of SEQ ID NO: 519 specifically recognizes this peptide as well as the corresponding native peptide of SEQ ID NO: 518, ELISA analyses were performed. For these analyses, flat-bottomed 96 well microtiter plates were coated with either the peptide of SEQ ID NO: 519, the longer peptide of SEQ ID NO: 520 that spans the entire predicted extracellular domain, the peptide of SEQ ID NO: 521 which represents the epitope recognized by the P501S-specific antibody 10E3-G4-D3, or a P501S fragment (corresponding to amino acids 355-526 of SEQ ID NO: 113) that does not include the immunizing peptide sequence, at 1 µg/ml for 2 hours at 37 °C. Wells were aspirated, blocked with phosphate buffered saline containing 1% (w/v) BSA for 2 hours at room temperature and subsequently washed in PBS containing 0.1% Tween 20 (PBST). Purified anti-P501S polyclonal rabbit serum was added at 2 fold dilutions (1000 ng - 125 ng) in PBST and incubated for 30 min at room temperature. This was followed by washing 6 times with PBST and incubating with HRP-conjugated goat anti-rabbit IgG (H+L) Affinipure F(ab') fragment at 1:20000 for 30 min. Plates were then washed and incubated for 15 min in tetramethyl benzidine. Reactions were stopped by the addition of 1N sulfuric acid and plates were read at 450 nm using an ELISA plate reader. As shown in Fig. 11, the anti-P501S polyclonal rabbit serum specifically recognized the peptide of SEQ ID NO: 519 used in the immunization as well as the longer peptide of SEQ ID NO: 520, but did not recognize the irrelevant P501S-derived peptides and fragments.

In further studies, rabbits were immunized with peptides derived from the P501S sequence and predicted to be either extracellular or intracellular, as shown in Fig. 9. Polyclonal rabbit sera were isolated and polyclonal antibodies in the serum were purified, as described above.

To determine specific reactivity with P501S, FACS analysis was employed, utilizing either B-LCL transduced with P501S or the irrelevant antigen P703P, of B-LCL infected with vaccinia virus-expressing P501S. For surface expression, dead and non-intact cells were excluded from the analysis as described above. For intracellular staining, cells were fixed and permeabilized as described above. Rabbit polyclonal serum generated against the peptide of SEQ ID NO: 548, which corresponds to amino acids 181-198 of P501S, was found to recognize a surface epitope of P501S. Rabbit polyclonal serum generated against the peptide SEQ ID NO: 551, which corresponds to amino acids 543-553 of P501S, was found to recognize an epitope that was either potentially extracellular or intracellular since in different experiments intact or permeabilized cells were recognized by the polyclonal sera. Based on similar deductive reasoning, the sequences of SEQ ID NO: 541-547, 549 and 550, which correspond to amino acids 109-122, 539-553, 509-520, 37-54, 342-359, 295-323, 217-274, 143-160 and 75-88, respectively, of P501S, can be considered to be potential surface epitopes of P501S recognized by antibodies.

The chromosomal location of P501S was determined using the GeneBridge 4 Radiation Hybrid panel (Research Genetics). The PCR primers of SEQ ID NO: 528 and 529 were employed in PCR with DNA pools from the hybrid panel according to the manufacturer's directions. After 38 cycles of amplification, the reaction products were separated on a 1.2% agarose gel, and the results were analyzed through the Whitehead Institute/MIT Center for Genome Research web server (<http://www-genome.wi.mit.edu/cgi-bin/contig/rhmapper.pl>) to determine the probable chromosomal location. Using this approach, P501S was mapped to the long arm of chromosome 1 at WI-9641 between q32 and q42. This region of chromosome 1 has been linked to prostate cancer susceptibility in hereditary prostate cancer (Smith *et al. Science* 274:1371-1374, 1996 and Berthon *et al. Am. J. Hum. Genet.* 62:1416-1424, 1998). These results suggest that P501S may play a role in prostate cancer malignancy.

From the foregoing, it will be appreciated that, although specific embodiments of the invention have been described herein for the purposes of illustration, various modifications may be made without deviating from the spirit and scope of the invention. Accordingly, the present invention is not limited except as by the appended claims.

CLAIMS

1. An isolated polypeptide comprising at least an immunogenic portion of a prostate-specific protein, or a variant thereof, wherein the protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(a) sequences recited in any one of SEQ ID NO: 2, 3, 8-29, 41-45, 47-52, 54-65, 70, 73-74, 79, 81, 87, 90, 92, 93, 97, 103, 104, 107, 109-111, 115-160, 171, 173-175, 177, 181, 188, 191, 193, 194, 198, 203, 204, 207, 209, 220, 222-225, 227-305, 307-315, 326, 328, 330, 332, 334, 350-365, 381, 382, 384, 386, 389, 390, 392, 393, 396, 401, 402, 407, 408, 410, 413, 415-419, 422, 426, 427, 432, 434, 435, 442-444, 446, 450, 452, 453, 459-461, 468-471, 472-476, 524, 526, 530, 531, 533, 535 and 536;

(b) sequences that hybridize to any of the foregoing sequences under moderately stringent conditions; and

(c) complements of any of the sequence of (a) or (b).

2. An isolated polypeptide according to claim 1, wherein the polypeptide comprises an amino acid sequence that is encoded by a polynucleotide sequence recited in any one of SEQ ID No: 2, 3, 8-29, 41-45, 47-52, 54-65, 70, 73-74, 79, 81, 87, 90, 92, 93, 97, 103, 104, 107, 109-111, 115-160, 171, 173-175, 177, 181, 188, 191, 193, 194, 198, 203, 204, 207, 209, 220, 222-225, 227-305, 307-315, 326, 328, 330, 332, 334, 350-365, 381, 382, 384, 386, 389, 390, 392, 393, 396, 401, 402, 407, 408, 410, 413, 415-419, 422, 426, 427, 432, 434, 435, 442-444, 446, 450, 452, 453, 459-461, 468-471, 472-476, 524, 526, 530, 531, 533, 535 and 536, or a complement of any of the foregoing polynucleotide sequences.

3. An isolated polypeptide comprising a sequence recited in any one of SEQ ID NO: 108, 112, 113, 114, 172, 176, 178, 327, 329, 331, 339, 383, 477-483, 496, 504, 505, 519, 520, 522, 525, 527, 532, 534 and 537-550.

4. An isolated polynucleotide encoding at least 15 contiguous amino acid residues of a prostate-specific protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the protein
5 comprises an amino acid sequence that is encoded by a polynucleotide comprising a sequence recited in any one of SEQ ID NO: 2, 3, 8-29, 41-45, 47-52, 54-65, 70, 73-74, 79, 81, 87, 90, 92, 93, 97, 103, 104, 107, 109-111, 115-160, 171, 173-175, 177, 181, 188, 191, 193, 194, 198, 203, 204, 207, 209, 220, 222-225, 227-305, 307-315, 326, 328, 330, 332, 334, 350-365, 381, 382, 384, 386, 389, 390, 392, 393, 396, 401, 402, 407, 408, 410, 413,
10 415-419, 422, 426, 427, 432, 434, 435, 442-444, 446, 450, 452, 453, 459-461, 468-471, 472-476, 524, 526, 530, 531, 533, 535 and 536, or a complement of any of the foregoing sequences.

5. An isolated polynucleotide encoding a prostate-specific protein, or a
15 variant thereof, wherein the protein comprises an amino acid sequence that is encoded by a polynucleotide comprising a sequence recited in any one of SEQ ID NO: 2, 3, 8-29, 41-45, 47-52, 54-65, 70, 73-74, 79, 81, 87, 90, 92, 93, 97, 103, 104, 107, 109-111, 115-160, 171, 173-175, 177, 181, 188, 191, 193, 194, 198, 203, 204, 207, 209, 220, 222-225, 227-305, 307-315, 326, 328, 330, 332, 334, 350-365, 381, 382, 384, 386, 389, 390, 392, 393, 396,
20 401, 402, 407, 408, 410, 413, 415-419, 422, 426, 427, 432, 434, 435, 442-444, 446, 450, 452, 453, 459-461, 468-471, 472-476, 524, 526, 530, 531, 533, 535 and 536, or a complement of any of the foregoing sequences.

6. An isolated polynucleotide comprising a sequence recited in any one
25 of SEQ ID NO: 2, 3, 8-29, 41-45, 47-52, 54-65, 70, 73-74, 79, 81, 87, 90, 92, 93, 97, 103, 104, 107, 109-111, 115-160, 171, 173-175, 177, 181, 188, 191, 193, 194, 198, 203, 204, 207, 209, 220, 222-225, 227-305, 307-315, 326, 328, 330, 332, 334, 350-365, 381, 382, 384, 386, 389, 390, 392, 393, 396, 401, 402, 407, 408, 410, 413, 415-419, 422, 426, 427, 432, 434, 435, 442-444, 446, 450, 452, 453, 459-461, 468-471, 472-476, 524, 526, 530,
30 531, 533, 535 and 536.

7. An isolated polynucleotide comprising a sequence that hybridizes under moderately stringent conditions to a sequence recited in any one of SEQ ID NO: 2, 3, 8-29, 41-45, 47-52, 54-65, 70, 73-74, 79, 81, 87, 90, 92, 93, 97, 103, 104, 107, 109-111, 115-160, 171, 173-175, 177, 181, 188, 191, 193, 194, 198, 203, 204, 207, 209, 220, 222-225, 227-305, 307-315, 326, 328, 330, 332, 334, 350-365, 381, 382, 384, 386, 389, 390, 392, 393, 396, 401, 402, 407, 408, 410, 413, 415-419, 422, 426, 427, 432, 434, 435, 442-444, 446, 450, 452, 453, 459-461, 468-471, 472-476, 524, 526, 530, 531, 533, 535 and 536.

8. An isolated polynucleotide complementary to a polynucleotide according to any one of claims 4-7.

9. An expression vector comprising a polynucleotide according to any one of claims 4-8.

10. A host cell transformed or transfected with an expression vector according to claim 9.

11. An isolated antibody, or antigen-binding fragment thereof, that specifically binds to a prostate-specific protein, the protein comprising an amino acid sequence encoded by a polynucleotide sequence recited in any one of SEQ ID NO: 2, 3, 8-29, 41-45, 47-52, 54-65, 70, 73-74, 79, 81, 87, 90, 92, 93, 97, 103, 104, 107, 109-111, 115-160, 171, 173-175, 177, 181, 188, 191, 193, 194, 198, 203, 204, 207, 209, 220, 222-225, 227-305, 307-315, 326, 328, 330, 332, 334, 350-365, 381, 382, 384, 386, 389, 390, 392, 393, 396, 401, 402, 407, 408, 410, 413, 415-419, 422, 426, 427, 432, 434, 435, 442-444, 446, 450, 452, 453, 459-461, 468-471, 472-476, 524, 526, 530, 531, 533, 535 and 536 or a complement of any of the foregoing polynucleotide sequences.

12. A monoclonal antibody that specifically binds to an amino acid sequence selected from the group consisting of SEQ ID NO: 496, 504, 505, 509-517, 519, 520, 522 and 539-551.

5 13. A monoclonal antibody comprising a complementarity determining region selected from the group consisting of SEQ ID NO: 502, 503 and 506-508.

10 14. A fusion protein comprising at least one polypeptide according to claim 1.

15 15. A fusion protein according to claim 14, wherein the fusion protein comprises an expression enhancer that increases expression of the fusion protein in a host cell transfected with a polynucleotide encoding the fusion protein.

16 16. A fusion protein according to claim 14, wherein the fusion protein comprises a T helper epitope that is not present within the polypeptide of claim 1.

20 17. A fusion protein according to claim 14, wherein the fusion protein comprises an affinity tag.

18. An isolated polynucleotide encoding a fusion protein according to claim 14.

25 19.. A pharmaceutical composition comprising a physiologically acceptable carrier and at least one component selected from the group consisting of:

- (a) a polypeptide according to claim 1;
- (b) a polynucleotide according to claim 4;
- (c) an antibody according to any one of claims 11-13;
- 30 (d) a fusion protein according to claim 14; and

(e) a polynucleotide according to claim 18.

20. A vaccine comprising an immunostimulant and at least one component selected from the group consisting of:

- 5 (a) a polypeptide according to claim 1;
(b) a polynucleotide according to claim 4;
(c) an antibody according to any one of claims 11-13;
(d) a fusion protein according to claim 14; and
(e) a polynucleotide according to claim 18.

10

21. A vaccine according to claim 20, wherein the immunostimulant is an adjuvant.

22. A vaccine according to claim 20, wherein the immunostimulant
15 induces a predominantly Type I response.

23. A method for inhibiting the development of a cancer in a patient, comprising administering to a patient an effective amount of a pharmaceutical composition according to claim 19.

20

24. A method for inhibiting the development of a cancer in a patient, comprising administering to a patient an effective amount of a vaccine according to claim 20.

25. A pharmaceutical composition comprising an antigen-presenting cell
25 that expresses a polypeptide according to claim 1, in combination with a pharmaceutically acceptable carrier or excipient.

26. A pharmaceutical composition according to claim 25, wherein the antigen presenting cell is a dendritic cell or a macrophage.

27. A vaccine comprising an antigen-presenting cell that expresses a polypeptide according to claim 1, in combination with an immunostimulant.

5 28. A vaccine according to claim 27, wherein the immunostimulant is an adjuvant.

29. A vaccine according to claim 27, wherein the immunostimulant induces a predominantly Type I response.

10

30. A vaccine according to claim 27, wherein the antigen-presenting cell is a dendritic cell.

31. A method for inhibiting the development of a cancer in a patient, comprising administering to a patient an effective amount of an antigen-presenting cell that expresses a polypeptide encoded by a polynucleotide recited in any one of SEQ ID NO: 1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382 and 384-476, 524, 526, 530, 531, 533, 535 and 536, and thereby inhibiting the development of a cancer in the patient.

20

32. A method according to claim 31, wherein the antigen-presenting cell is a dendritic cell.

33. A method according to any one of claims 23, 24 and 31, wherein the cancer is prostate cancer.

25

34. A method for removing tumor cells from a biological sample, comprising contacting a biological sample with T cells that specifically react with a prostate-specific protein, wherein the protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

30

(i) polynucleotides recited in any one of SEQ ID NO: 1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382 and 384-476, 524, 526, 530, 531, 533, 535 and 536; and

(ii) complements of the foregoing polynucleotides;

5 wherein the step of contacting is performed under conditions and for a time sufficient to permit the removal of cells expressing the prostate-specific protein from the sample.

35. A method according to claim 34, wherein the biological sample is
10 blood or a fraction thereof.

36. A method for inhibiting the development of a cancer in a patient, comprising administering to a patient a biological sample treated according to the method of claim 50.

15

37. A method for stimulating and/or expanding T cells specific for a prostate-specific protein, comprising contacting T cells with at least one component selected from the group consisting of:

(i) a polypeptide according to claim 1;

20 (ii) a polypeptide encoded by a polynucleotide comprising a sequence provided in any one of SEQ ID NO: 1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382 and 384-476, 524, 526, 530, 531, 533, 535 and 536;

(iii) a polynucleotide encoding a polypeptide of (i) or (ii); and

(iv) an antigen presenting cell that expresses a polypeptide of (i) or (ii),

25 under conditions and for a time sufficient to permit the stimulation and/or expansion of T cells.

38. An isolated T cell population, comprising T cells prepared according to the method of claim 37.

30

39. A method for inhibiting the development of a cancer in a patient, comprising administering to a patient an effective amount of a T cell population according to claim 38.

5 40. A method for inhibiting the development of a cancer in a patient, comprising the steps of:

(a) incubating CD4⁺ and/or CD8⁺ T cells isolated from a patient with at least one component selected from the group consisting of:

(i) a polypeptide according to claim 1;
10 (ii) a polypeptide encoded by a polynucleotide comprising a sequence of any one of SEQ ID NO: 1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382 and 384-476, 524, 526, 530, 531, 533, 535 and 536;

(iii) a polynucleotide encoding a polypeptide of (i) or (ii); or
15 (iv) an antigen-presenting cell that expresses a polypeptide of (i) or (ii);

such that T cells proliferate; and

(b) administering to the patient an effective amount of the proliferated T cells, and thereby inhibiting the development of a cancer in the patient.

20

41. A method for inhibiting the development of a cancer in a patient, comprising the steps of:

(a) incubating CD4⁺ and/or CD8⁺ T cells isolated from a patient with at least one component selected from the group consisting of:

(i) a polypeptide according to claim 1;
25 (ii) a polypeptide encoded by a polynucleotide comprising a sequence of any one of SEQ ID NO: 1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382 and 384-476, 524, 526, 530, 531, 533, 535 and 536;

30 (iii) a polynucleotide encoding a polypeptide of (i) or (ii); or

(iv) an antigen-presenting cell that expresses a polypeptide of (i) or (ii);

such that T cells proliferate;

(b) cloning at least one proliferated cell to provide cloned T cells; and

5 (c) administering to the patient an effective amount of the cloned T cells, and thereby inhibiting the development of a cancer in the patient.

42. A method for determining the presence or absence of a cancer in a patient, comprising the steps of:

10 (a) contacting a biological sample obtained from a patient with a binding agent that binds to a prostate-specific protein, wherein the protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NO: 1-111,
15 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382 and 384-476, 524, 526, 530, 531, 533, 535 and 536; and

(ii) complements of the foregoing polynucleotides;

(b) detecting in the sample an amount of polypeptide that binds to the binding agent; and

20 (c) comparing the amount of polypeptide to a predetermined cut-off value, and therefrom determining the presence or absence of a cancer in the patient.

43. A method according to claim 42, wherein the binding agent is an antibody.

25

44. A method according to claim 43, wherein the antibody is a monoclonal antibody.

45. A method according to claim 42, wherein the cancer is prostate
30 cancer.

46. A method for monitoring the progression of a cancer in a patient, comprising the steps of:

- 5 (a) contacting a biological sample obtained from a patient at a first point in time with a binding agent that binds to a prostate-specific protein, wherein the protein comprises an amino acid sequence that is encoded by a polynucleotide sequence of any one of SEQ ID NO: 1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382 and 384-476, 524, 526, 530, 531, 533, 535 and 536, or a complement of any of the foregoing polynucleotides;
- 10 (b) detecting in the sample an amount of polypeptide that binds to the binding agent;
- (c) repeating steps (a) and (b) using a biological sample obtained from the patient at a subsequent point in time; and
- (d) comparing the amount of polypeptide detected in step (c) to the
15 amount detected in step (b) and therefrom monitoring the progression of the cancer in the patient.

47. A method according to claim 46, wherein the binding agent is an antibody.

20

48. A method according to claim 47, wherein the antibody is a monoclonal antibody.

49. A method according to claim 46, wherein the cancer is a prostate
25 cancer.

50. A method for determining the presence or absence of a cancer in a patient, comprising the steps of:

- 30 (a) contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes a prostate-specific protein,

wherein the protein comprises an amino acid sequence that is encoded by a polynucleotide sequence of any one of SEQ ID NO: 1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382 and 384-476, 524, 526, 530, 531, 533, 535 and 536, or a complement of any of the foregoing polynucleotides;

5 (b) detecting in the sample an amount of a polynucleotide that hybridizes to the oligonucleotide; and

(c) comparing the amount of polynucleotide that hybridizes to the oligonucleotide to a predetermined cut-off value, and therefrom determining the presence or absence of a cancer in the patient.

10

51. A method according to claim 50, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a polymerase chain reaction.

15

52. A method according to claim 50, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a hybridization assay.

53. A method for monitoring the progression of a cancer in a patient,
20 comprising the steps of:

(a) contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes a prostate-specific protein, wherein the protein comprises an amino acid sequence that is encoded by a polynucleotide sequence of any one of SEQ ID NO: 1-111, 115-171, 173-175, 177, 179-305, 307-315,
25 326, 328, 330, 332-335, 340-375, 381, 382 and 384-476, 524, 526, 530, 531, 533, 535 and 536, or a complement of any of the foregoing polynucleotides;

(b) detecting in the sample an amount of a polynucleotide that hybridizes to the oligonucleotide;

(c) repeating steps (a) and (b) using a biological sample obtained from
30 the patient at a subsequent point in time; and

(d) comparing the amount of polynucleotide detected in step (c) to the amount detected in step (b) and therefrom monitoring the progression of the cancer in the patient.

5 54. A method according to claim 53, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a polymerase chain reaction.

10 55. A method according to claim 53, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a hybridization assay.

 56. A diagnostic kit, comprising:
 (a) one or more antibodies according to claim 11; and
15 (b) a detection reagent comprising a reporter group.

 57. A kit according to claim 56, wherein the antibodies are immobilized on a solid support.

20 58. A kit according to claim 56, wherein the detection reagent comprises an anti-immunoglobulin, protein G, protein A or lectin.

 59. A kit according to claim 56, wherein the reporter group is selected from the group consisting of radioisotopes, fluorescent groups, luminescent groups,
25 enzymes, biotin and dye particles.

 60. An oligonucleotide comprising 10 to 40 contiguous nucleotides that hybridize under moderately stringent conditions to a polynucleotide that encodes a prostate-specific protein, wherein the protein comprises an amino acid sequence that is
30 encoded by a polynucleotide sequence recited in any one of SEQ ID NO: 2, 3, 8-29, 41-45,

47-52, 54-65, 70, 73-74, 79, 81, 87, 90, 92, 93, 97, 103, 104, 107, 109-111, 115-160, 171,
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5 452, 453, 459-461, 468-476, 524, 526, 530, 531, 533, 535 and 536, or a complement of any
of the foregoing polynucleotides.

61. A oligonucleotide according to claim 60, wherein the
oligonucleotide comprises 10-40 contiguous nucleotides recited in any one of SEQ ID NO:
10 2, 3, 8-29, 41-45, 47-52, 54-65, 70, 73-74, 79, 81, 87, 90, 92, 93, 97, 103, 104, 107, 109-
111, 115-160, 171, 173-175, 177, 181, 188, 191, 193, 194, 198, 203, 204, 207, 209, 220,
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15

62. A diagnostic kit, comprising:

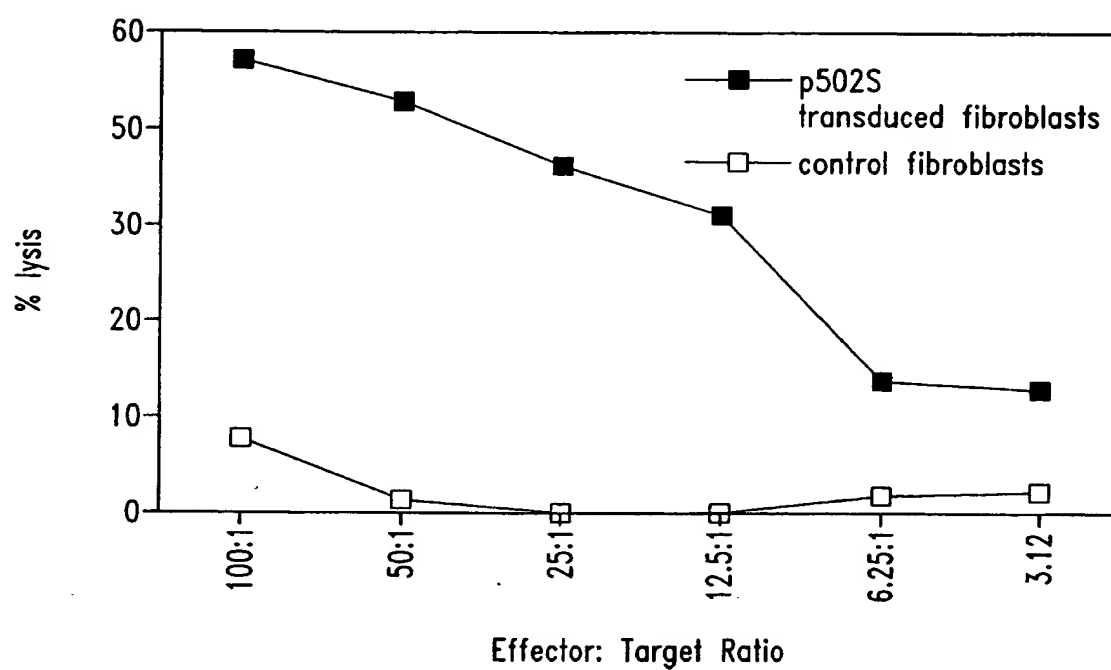
(a) an oligonucleotide according to claim 61; and

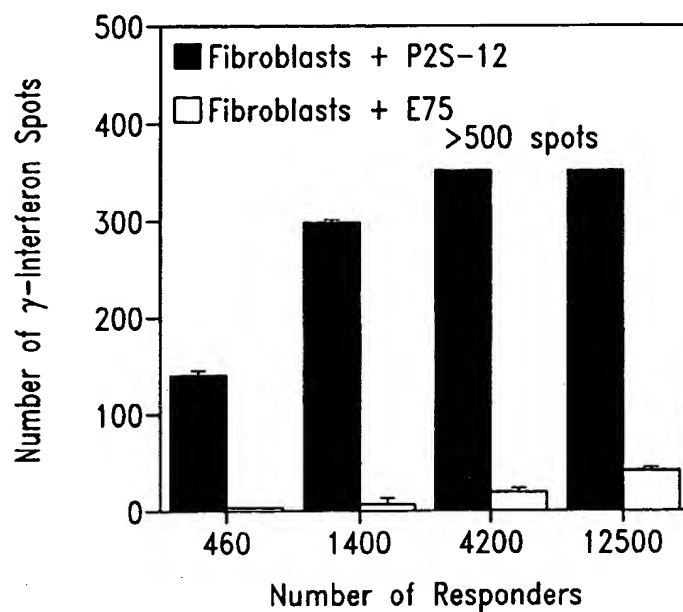
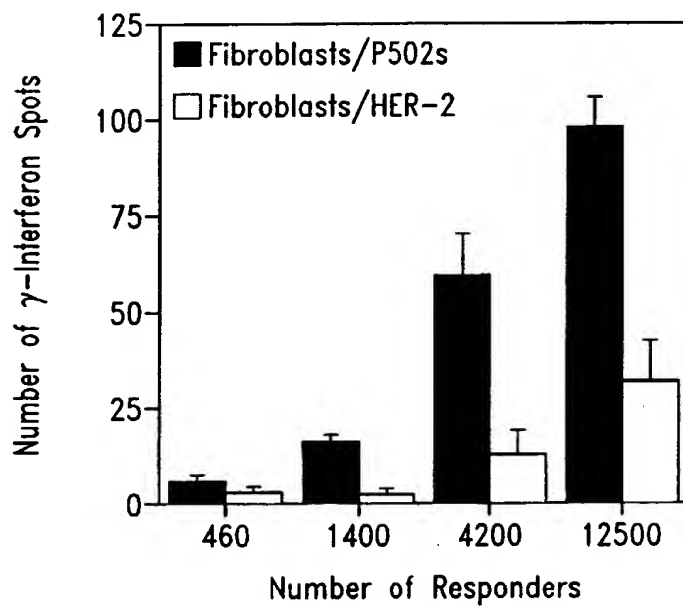
(b) a diagnostic reagent for use in a polymerase chain reaction or
hybridization assay.

20

63. A host cell according to claim 10, wherein the cell is selected from
the group consisting of: *E. coli*, baculovirus and mammalian cells.

64. A recombinant protein produced by a host cell according to claim
25 10.

*Fig. 1*

*Fig. 2A**Fig. 2B*

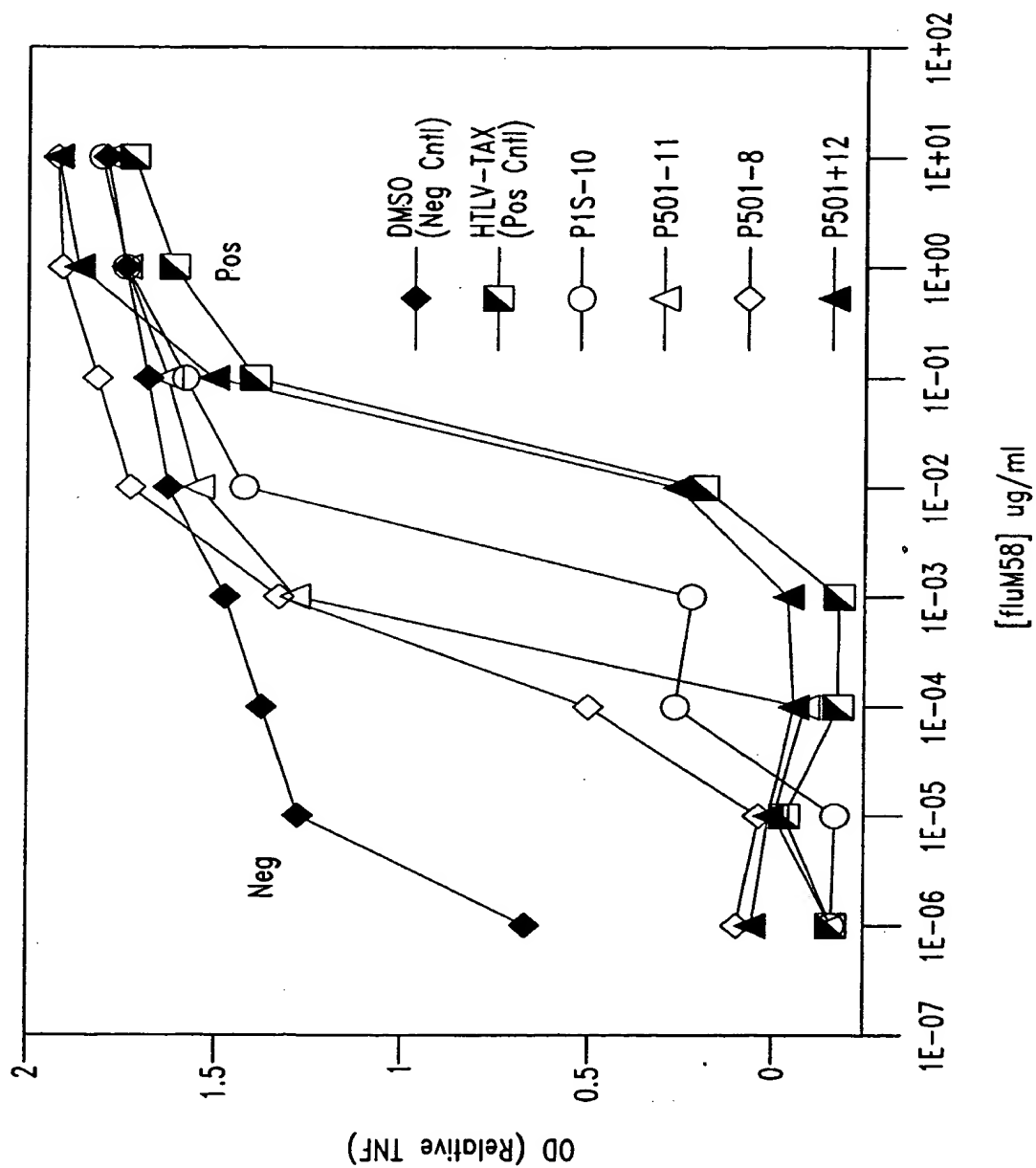
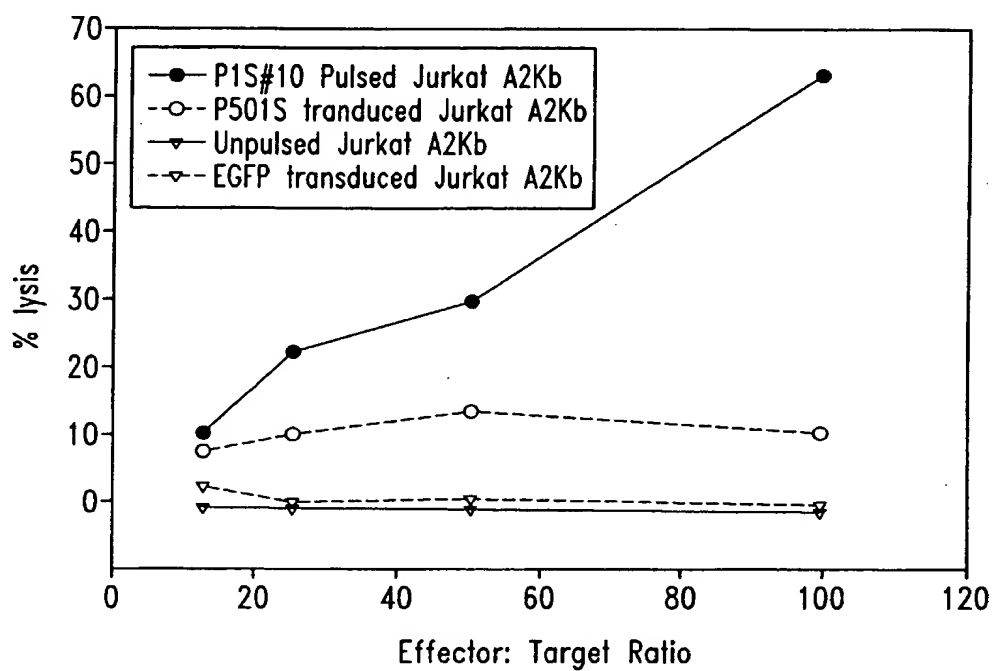
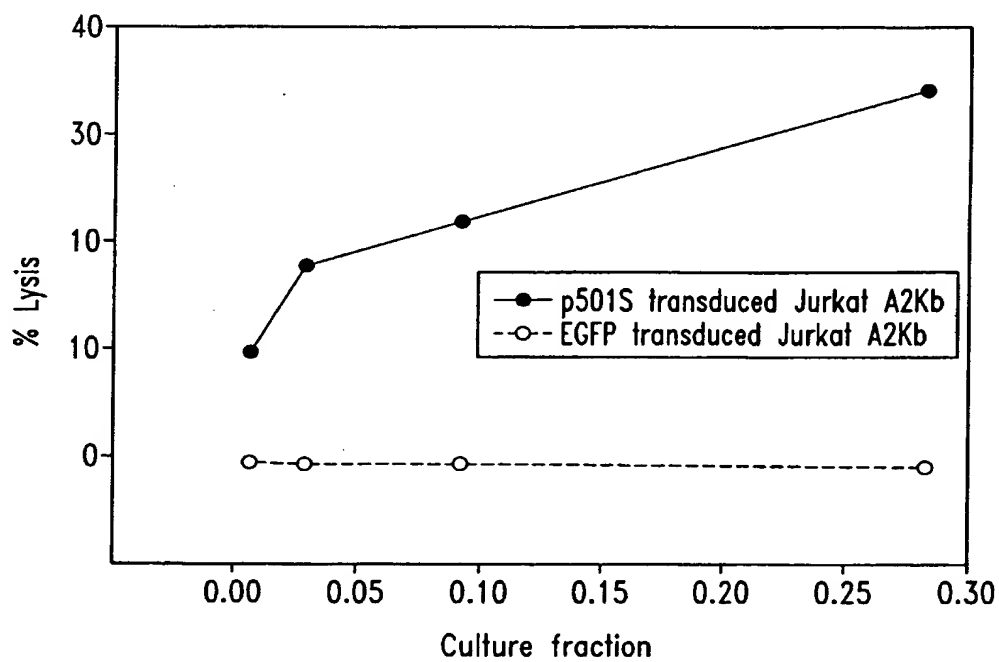
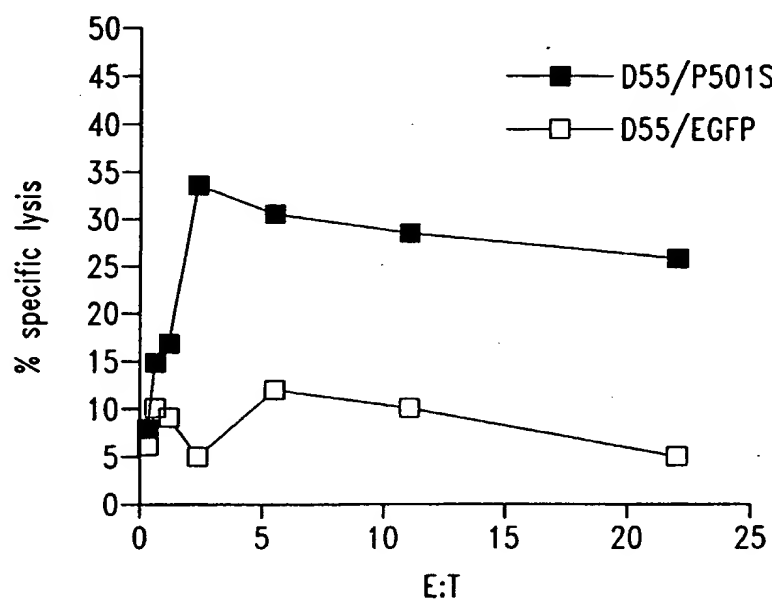
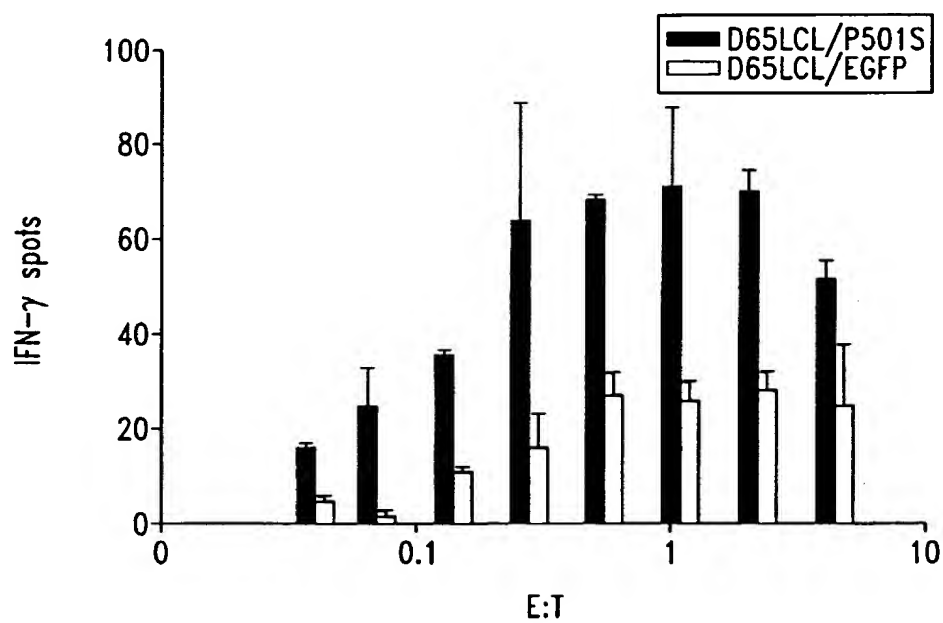
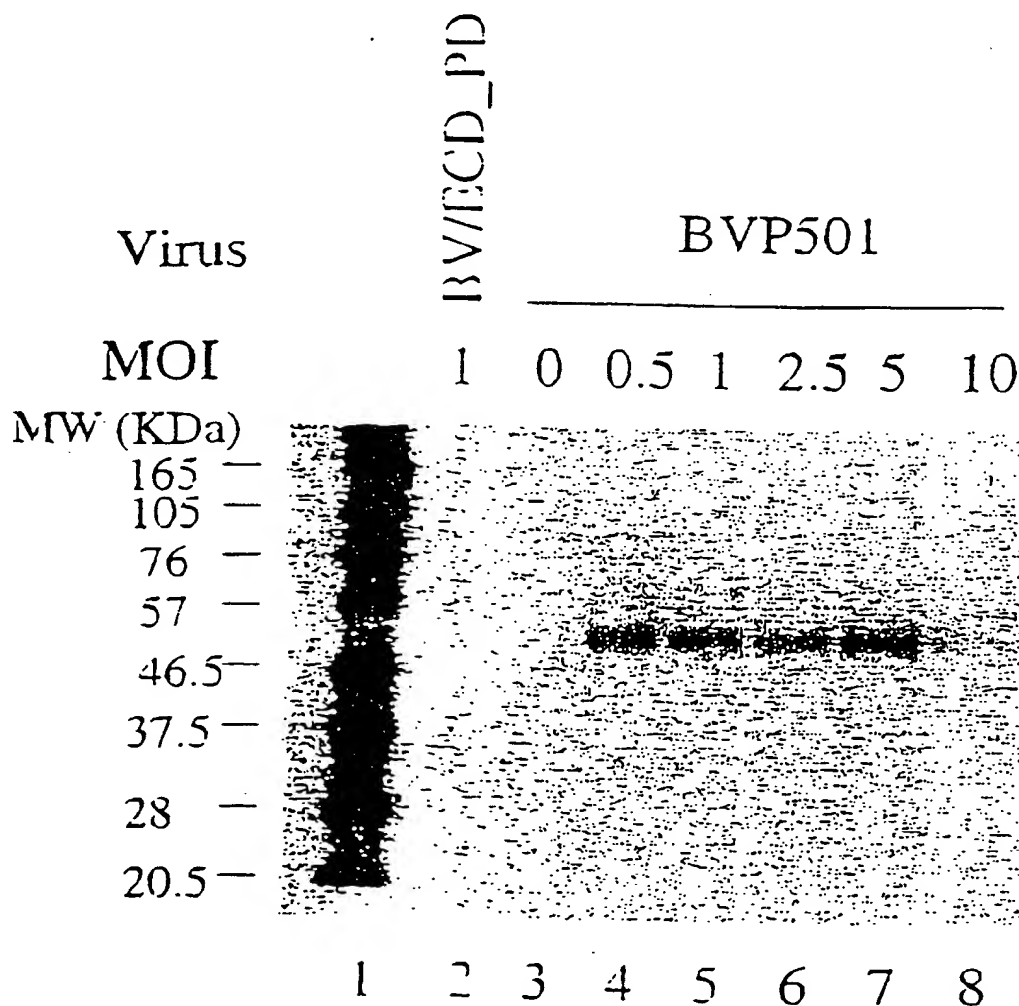


Fig. 3

*Fig. 4**Fig. 5*

*Fig. 6A**Fig. 6B*

Expression of P501S by the Baculovirus Expression System



0.6 million high 5 cells in 6-well plate were infected with an unrelated control virus BV/ECD_PD (lane 2), without virus (lane 3), or with recombinant baculovirus for P501 at different MOIs (lane 4 - 8). Cell lysates were run on SDS-PAGE under the reducing conditions and analyzed by Western blot with a monoclonal antibody against P501S (P501S-10E3-G4D3). Lane 1 is the biotinylated protein molecular weight marker (BioLabs).

Fig. 7

Figure 8. Mapping of the epitope recognized by 10E3-G4-D3

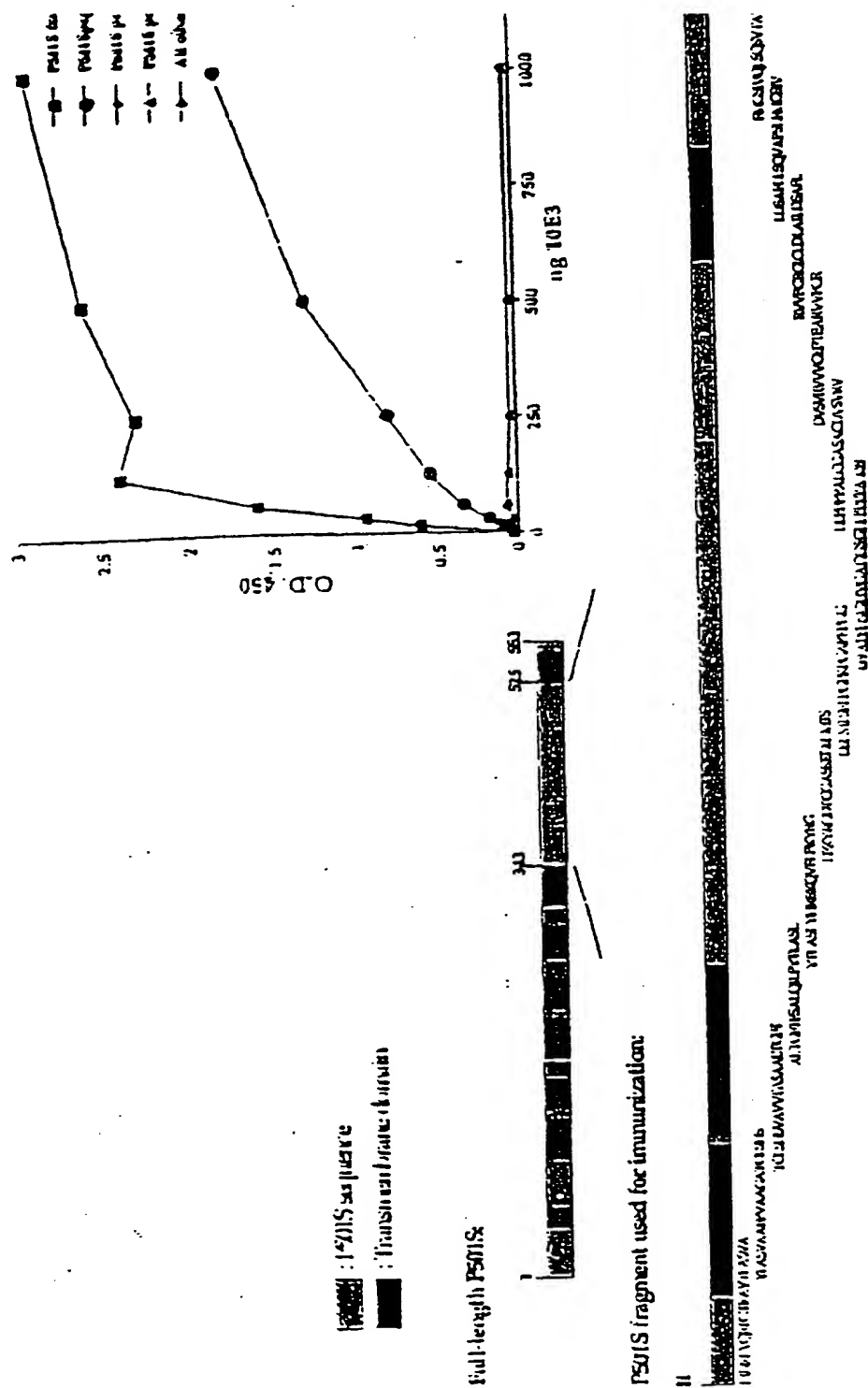


Fig. 8

Schematic of P501S with predicted
transmembrane, cytoplasmic, and extracellular regions

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MGSLGLFLQCAISLVFSLVM DRLVQRFGTRAVYLAS VAAFPVAAGATCLSHSVAVVTA SAA

LTGFTFSALQILPYTLASLY HREKQVFLPKYRGDTGGASSEDSLMTSFLPGPKPGAPFPNGHVGAGGSGL

LPPPPALCGASACDVSVRVVVGEPTEARVVPGRG ICLDLAILDSAFLLSQVAPSLF MGSIVQLSQS

VTAYMVSAAGLGLVAIYFAT QVVFDKSDLAKYSA

Underlined sequence: Predicted transmembrane domain; **Bold sequence**:
Predicted extracellular domain; *Italic sequence*: Predicted intracellular
domain. Sequence in bold/underlined: used generate polyclonal rabbit
serum

Localization of domains predicted using HMMTOP (G.E. Tusnady and I. Simon
(1998) Principles Governing Amino Acid Composition of Integral Membrane
Proteins: Applications to topology Prediction. J. Mol Biol. 283, 489-506.

Fig. 9

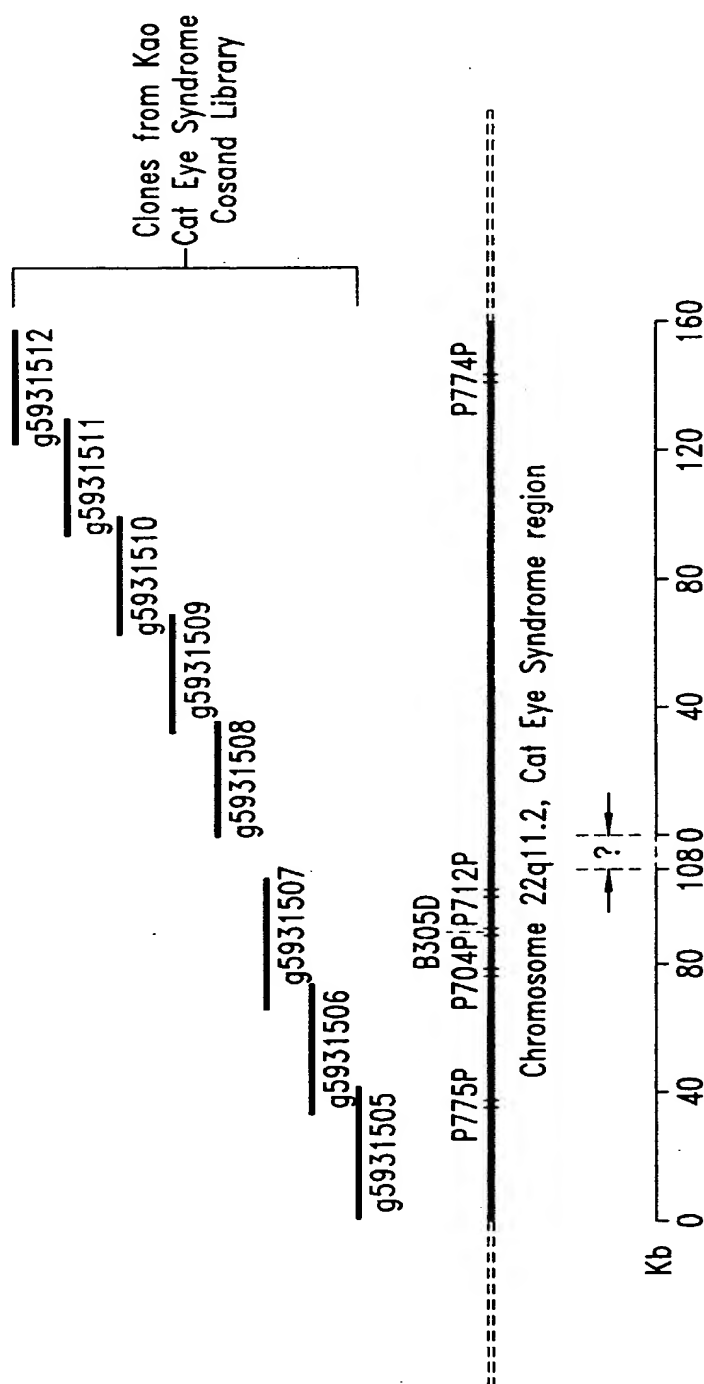
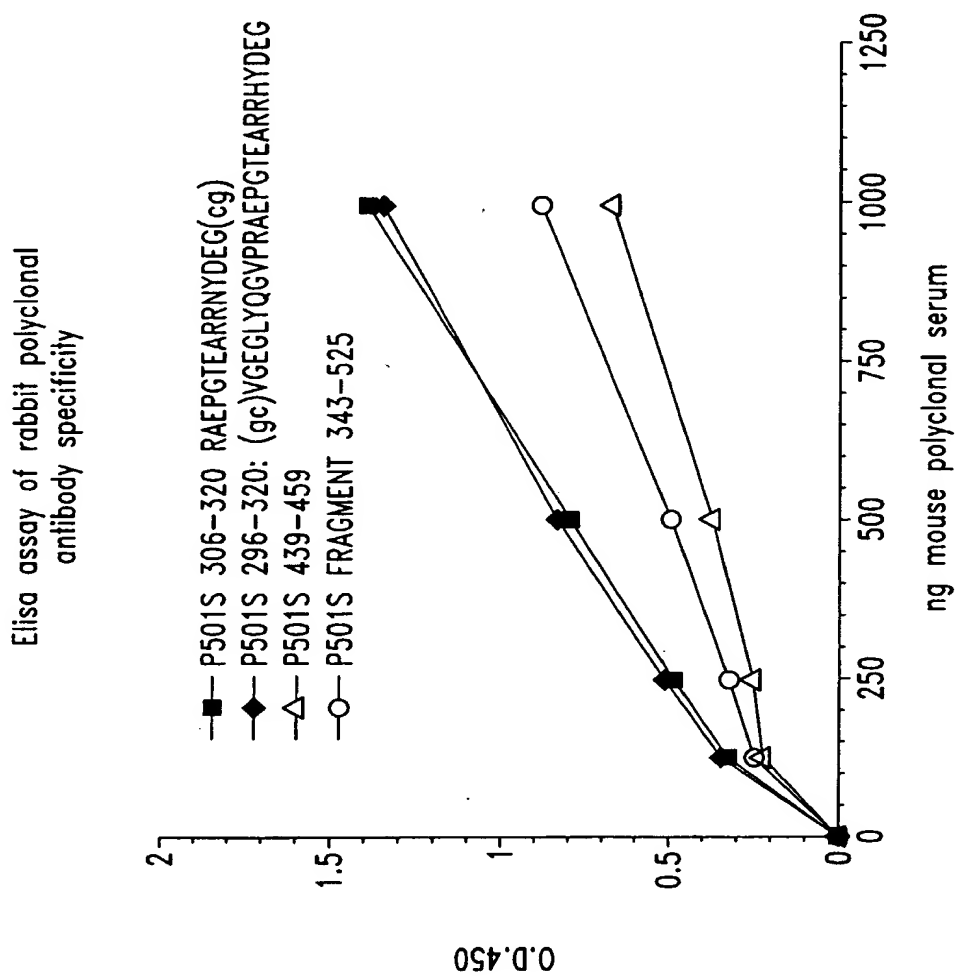


Fig. 10

*Fig. 11*

SEQUENCE LISTING

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 Xu, Jiangchun
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aagtggtttg	gttttagacgt	ccgggaattg	catctgtttt	taagcctaata	gtggggacag	240
ctcatgagtg	caagacgtct	tgtgatgtaa	ttattatacn	aatggggggt	tcaatcgga	300
gtactactcg	attgtcaacg	tcaaggagtc	gcaggtcgcc	tggttctagg	aataatgggg	360
gaagtatgta	ggaattgaag	attaatccgc	cgtagtcggt	gttctcctag	gttcaatacc	420
attggtggcc	aattgatttg	atggtaaggg	gagggatcgt	tgaactcgtc	tgttatgtaa	480
aggatncctt	ngggatggga	aggcnatnaa	ggactangga	tnaatggcgg	gcangatatt	540
tcaaacngtc	tctanttctt	gaaacgtctg	aaatgttaat	aanaattaan	tttngttatt	600
gaatnttng	gaaaagggt	tacaggacta	gaaaccaaata	angaaaanta	atnntaangg	660
cnttatcntn	aaaggtnata	accnctccta	tnatcccacc	caatngnatt	ccccacnenn	720
acnattggat	cccccanttc	canaaanggc	cnccccccg	tgnannccnc	cttttgttcc	780
cttnantgan	ggttattcnc	ccctngcntt	atcance			817

<210> 8

<211> 799

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (799)

<223> n = A,T,C or G

<400> 8

catttccggg	tttactttct	aaggaaagcc	gagcggaagc	tgctaacgtg	ggaatcgggt	60
cataaggaga	actttctgct	ggcacgcgct	agggacaagc	gggagagcga	ctccgagcgt	120
ctgaagcgca	cgtcccagaa	ggtggacttg	gcactgaaac	agctgggaca	catccgcgag	180
tacgaacagc	gcctgaaagt	gctggagcgg	gaggtccagc	agtgtagccg	cgtcctgggg	240
tgggtggccg	angcctganc	cgctctgcct	tgctgcccc	angtgggccc	ccacccccctg	300
acctgcctgg	gtccaaacac	tgagccctgc	tggcggactt	caagganaac	ccccacangg	360
ggattttgct	cctanantaa	ggctcatctg	ggcctcgccc	ccccacctg	gttggccttg	420
tctttgngt	gagccccatg	tccatctggg	ccactgtcng	gaccaccttt	ngggagtgtt	480
ctccttacia	ccacannatg	cccggtcctt	cccggaaccc	antccancc	tgngaaggat	540
caagnccctgn	atccactnnt	nctanaaccg	gcncncnccg	cngtggaaac	cnccttntgt	600
tccttttctt	tnagggttaa	tnnccgcttg	gccttnccan	ngtccctncc	nttttccnnt	660

gttnaaattg	ttangcnccc	nccnntcccn	cnnnnnnan	cccgaccn	anntnnann	720
ncctgggggt	nccnnngat	tgaccncc	nccctntant	tgcnttnggg	nncnntgccc	780
ctttccctct	nggganncg					799

<210> 9

<211> 801

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(801)

<223> n = A,T,C or G

<400> 9

acgccttgat	cctcccaggc	tgggactggg	tctgggagga	gccggggcatg	ctgtgggtttg	60
taangatgac	actcccaaag	gtggtcctga	cagtggccca	gatggacatg	gggctcacct	120
caaggacaag	gccaccaggt	gcggggggcg	aagcccatat	gacccctact	ctatgagcaa	180
aatccctctg	gggggcttct	ccttgaagtc	cgccancagg	gctcagctct	tggaaccang	240
cagggtcatgg	gggtgtngnc	caactggggg	ccncaacgca	aaanggcnc	gggcctcngn	300
cacccatccc	angacgggc	tacactnctg	gacctccncc	tccaccactt	tcatgcgctg	360
ttcntaccgg	cgnatntgtc	ccanctgttt	cngtgcenac	tccancttct	nggacgtgcg	420
ctacatacgc	ccggantcnc	ntcccgcctt	tgteccctatc	cacgtncan	caacaaattt	480
cncctantg	caccnatccc	cacnttttnc	agntttccnc	nncngcttc	cttntaaaag	540
gggtganccc	cggaaaatnc	cccaaagggg	ggggggcngg	tacccaactn	ccccctnata	600
gctgaantcc	ccatnaccnn	gnctcnatgg	ancntccnt	tttaannacn	ttctnaactt	660
gggaanancc	ctcgnccntn	ccccnttaa	teccnccctg	cnangnnent	ccccnntcc	720
ncccnntng	gcntntnann	cnaaaaaggc	ccnnnancaa	tctcctnncn	cctcanttcg	780
ccanccctcg	aaatcgccn	c				801

<210> 10

<211> 789

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(789)

<223> n = A,T,C or G

<400> 10

cagtctatnt	ggccagtggt	gcagctttcc	ctgtggctgc	cggtgccaca	tgccctgtccc	60
acagtgtggc	cggtgtgaca	gcttcagccg	ccctcaccgg	gttcaccttc	tcagccctgc	120
agatecctgcc	ctacacactg	gcctccctct	accaccggga	gaagcagggtg	ttcctgcccc	180
aataccgagg	ggacactgga	ggtgctagca	gtgaggacag	cctgatgacc	agcttcctgc	240
caggccctaa	gcctggagct	ccctcccta	atggacacgt	gggtgctgga	ggcagtgggc	300
tgctcccacc	tccaccggcg	ctctgcgggg	cctctgcctg	tgatgtctcc	gtacgtgtgg	360
tggtgggtga	gcccaccgan	gccagggtgg	ttccggggcg	gggcatctgc	ctggacctcg	420
ccatcctgga	tagtgcttcc	tgctgtccca	ngtggcccca	tccctgttta	tggtgtccat	480
tgctccagctc	agccagctctg	tactgccta	tatggtgtct	gccgcaggcc	tggtgtctgg	540
cccatttact	ttgctacaca	ggtantattt	gacaagaacg	anttggccaa	atactcagcg	600
ttaaaaaatt	ccagcaacat	tggggggtgga	aggcctgcct	cactgggtcc	aactccccgc	660
tctgtttaac	cccatggggc	tgccggcttg	gccgccaatt	tctgttgctg	ccaaantnat	720
gtggctctct	gctgccacct	gctgtgtggt	gaagtgcnta	cngcncanct	nggggggtng	780
ggngttccc						789

<210> 11

<211> 772

<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(772)
<223> n = A,T,C or G

<400> 11
 cccaccctac ccaaataatta gacaccaaca cagaaaagct agcaatggat tcccttctac 60
 tttgttaaat aaataagtta aatattttaa tgcctgtgtc tctgtgatgg caacagaagg 120
 accaacaggc cacatcctga taaaaggtaa gaggggggtg gatcagcaaa aagacagtgc 180
 tgtgggctga ggggacctgg ttcttgtgtg ttgccccca ggactcttcc cctacaaata 240
 actttcatat gttcaaatcc catggaggag tgtttcatcc tagaaactcc catgcaagag 300
 ctacattaaa cgaagctgca ggttaagggg cttanagatg ggaaaccagg tgactgagtt 360
 tattcagctc caaaaaacc ttctctaggt gtgtctcaac taggaggcta gctgttaacc 420
 ctgagcctgg gtaatccacc tgcagagtcc ccgcattcca gtgcatggaa cccttctggc 480
 ctccctgtat aagtcagac tgaaaccccc ttggaaggnc tccagtcagg cagccctana 540
 aactggggaa aaaagaaaag gacgccccan cccccagctg tgcantacg cactcaaca 600
 gcacaggtg gcagcaaaaa aaccacttta ctttggcaca aacaaaaact ngggggggca 660
 accccggcac cccnangggg gttaacagga ancngggnaa cntggaaccc aattnaggca 720
 ggcccnccac cccnaatntt gctgggaaat ttttctccc ctaaattntt tc 772

<210> 12
<211> 751
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(751)
<223> n = A,T,C or G

<400> 12
 gcccgaattc cagctgccac accacccacg gtgactgcat tagttcggat gtcatacaaa 60
 agctgattga agcaaccctc tacttttttg tctgtgacct tttgcttggg gcaggtttca 120
 ttggctgtgt tgggtacgtt gtcattgcaa cagaatgggg gaaaggcact gttctctttg 180
 aagtanggtg agtcctcaaa atccgtatag ttggtgaagc cacagcactt gagccctttc 240
 atggtggtgt tccacacttg agtgaagtct tccctgggaac cataatcttt cttgatggca 300
 ggcactacca gcaacgtcag ggaagtgtc agccattgtg gtgtacacca aggcgaccac 360
 agcagctgcn acctcagcaa tgaagatgan gaggangatg aagaagaacg tcncgagggc 420
 acacttgctc tcagtcttan caccatanca gcccntgaaa accaananca aagaccacna 480
 cncgggtgc gatgaagaaa tnaccccneg ttgacaaact tgcattggcag tggganccac 540
 agtggcccn aaaaatcttca aaaaggatgc cccatcnatt gaccccccaa atgccactg 600
 ccaacagggg ctgccccacn cncnnaacga tganccnatt gnacaagatc tncntggtct 660
 tnatnaacnt gaaccctgcn tngtggctcc tgttcaggnc cnnngcctga cttctnaann 720
 aangaactcn gaagncceca cngganann g 751

<210> 13
<211> 729
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(729)
<223> n = A,T,C or G

<400> 13

gagccaggcg	tccctctgce	tgcccactca	gtggcaacac	ccgggagctg	ttttgtcett	60
tgtggancct	cagcagtncc	ctctttcaga	actcantgcc	aaganccctg	aacaggagcc	120
accatgcagt	gcttcagctt	cattaagacc	atgatgatcc	tcttcaattt	gctcatcttt	180
ctgtgtggtg	cagccctggt	ggcagtgggc	atctgggtgt	caatcgatgg	ggcatccttt	240
ctgaagatct	tcggggccact	gtcgtccagt	gccatgcagt	ttgtcaacgt	gggctacttc	300
ctcatcgag	ccggcggttg	ggtcttagct	ctaggtttcc	tgggctgcta	tgggtgctaag	360
actgagagca	agtgtgccct	cgtgacgttc	ttcttcatcc	tcctcctcat	cttcattgct	420
gaggttgcaa	tgctgtggtc	gccttggtgt	acaccacaat	ggctgagcac	ttcctgacgt	480
tgctggtaat	gcctgccatc	aanaaaagat	tatgggttcc	caggaanact	tactcaagt	540
gttggaacac	caccatgaaa	gggctcaagt	gctgtggctt	cnnccaacta	tacggatttt	600
gaagantcac	ctacttcaaa	gaaaanagt	cctttccccc	atttctgttg	caattgacaa	660
acgtcccca	cacagccaat	tgaaaacctg	caccaacccc	aaanggggtcc	ccaaccanaa	720
attnaaggg						729

<210> 14

<211> 816

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (816)

<223> n = A,T,C or G

<400> 14

tgtcttctct	caaagttggt	cttgttgcca	taacaaccac	cataggtaaa	gcgggagcag	60
tgttcgctga	aggggttgta	gtaccagcgc	gggatgctct	ccttgagag	tcctgtgtct	120
ggcagggtca	cgcagtggcc	ttgtcactg	gggaaatgga	tgcgctggag	ctcgtcaaa	180
ccactcgtgt	atttttcaca	ggcagcctcg	tccgacgcgt	cggggcagtt	gggggtgtct	240
tcacactcca	ggaaactgtc	natgcagcag	ccattgctgc	agcggaaactg	gggtgggtga	300
cangtgccag	agcacactgg	atggcgccct	tccatgnnan	gggcccctgng	ggaaagtccc	360
tganccecan	anctgcctct	caaangcccc	accttgacac	ccccgacagg	ctagaatgga	420
atcttcttcc	cgaaaggtag	ttnttcttgt	tgcccnaacc	anccccntaa	acaaactctt	480
gcanatctgc	tccngggggg	tctantacc	ancgtgggaa	aagaaccccc	ggcngcgaac	540
caancttggt	tggatncgaa	gcnataatct	ncntttctgc	ttggtggaca	gcaccantna	600
ctgtnnantg	ttagnccntg	gtcctcntgg	gttgncttg	aacctaatcn	ccnntcaact	660
gggacaagg	aantngccnt	cctttnaatt	cccnanctn	ccccctgggt	ttgggttttn	720
cncnctcta	ccccagaaan	nccgtgttcc	cccccaacta	ggggccnaaa	ccnnttnttc	780
cacaacctn	ccccaccac	gggttcngnt	ggttng			816

<210> 15

<211> 783

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (783)

<223> n = A,T,C or G

<400> 15

ccaaggcctg	ggcaggcata	nacttgaagg	tacaaccccc	ggaacccctg	gtgctgaagg	60
atgtggaaaa	cacagattgg	cgcctactgc	ggggtgacac	ggatgtcagg	gtagagagga	120
aagacccaaa	ccaggtggaa	ctgtggggac	tcaagggaang	cacctacctg	ttccagctga	180
cagtgcactg	ctcagaccac	ccagaggaca	cggccaacgt	cacagtcact	gtgctgtcca	240
ccaagcagac	agaagactac	tgctcgcac	ccaacaangt	gggtcgctgc	cggggctctt	300
tcccacgctg	gtactatgac	cccacggagc	agatctgcaa	gagtttcgtt	tatggaggct	360

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gcttgggcaa caagaacaac taccttcggg aagaagagtg cattctancc tgtcnggggtg 420
tgcaagggtg gccttttgana ngcanctctg gggctcangc gactttcccc caggggccct 480
ccatggaaag gcgccatcca ntgttctctg gcacctgtca gcccaccag ttccgctgca 540
ncaatggctg ctgcacnac antttcctng aattgtgaca acacccccca ntgccccaa 600
ccctcccaac aaagcttccc tgttnaaaaa tacnccantt ggcttttnac aaacncccg 660
cncctccttt tccccnntn aacaaagggc nctngccttt gaactgccc aaccnnggaa 720
tctnccnngg aaaaantncc ccccttggtt cctnnaance cctcncnaa anctncccc 780
ccc 783

```

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<210> 16
<211> 801
<212> DNA
<213> Homo sapien

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<220>
<221> misc_feature
<222> (1)...(801)
<223> n = A,T,C or G

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```

<400> 16
gccccaatc cagctgccac accaccacg gtgactgcat tagttcggat gtcatacaaa 60
agctgattga agcaaccctc tacttttttg tctgtagcct tttgcttgg gcagggttca 120
ttggctgtgt tgggtgacgtt gtcattgcaa cagaatgggg gaaaggcact gttctctttg 180
aagtaggggtg agtcctcaaa atccgtatag ttggtgaagc cacagcactt gagccctttc 240
atgggtgggtg tccacacttg agtgaagtct tccctgggaa cataatcttt ctgatggca 300
ggcactacca gcaacgtcag gaagtgtcga gccattgtgg tgtacaccaa ggcgaccaca 360
gcagctgcaa cctcagcaat gaagatgagg aggaggatga agaagaacgt cncgagggca 420
cacttgctct cctgttagc accatagcag cccangaaac caagagcaaa gaccacaacg 480
ccnctgcca atgaaagaaa ntaccacgt tgacaaactg catggccact ggacgacagt 540
tggcccgaan atcttcagaa aagggtatgc ccatcgattg aacaccana tgccactgc 600
cnacagggct gncnncnncn gaaagaatga gccattgaag aaggatcctc ntgggtctaa 660
tgaactgaaa cntgcatgg tggccctgt tccaggctct tggcagtga ttctganaaa 720
aaggaacngc ntnagcccc ccaaangana aaacacccc ggggtgttgc ctgaattggc 780
ggccaaggan cctgccccn g 801

```

```

<210> 17
<211> 740
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(740)
<223> n = A,T,C or G

```

```

<400> 17
gtgagagcca ggcgtccctc tgccctgccc ctcagtggca acacccggga gctgttttgt 60
cctttgtgga gcctcagcag ttccctcttt cagaactcac tgccaagagc cctgaacagg 120
agccaccatg cagtgettca gcttcattaa gaccatgatg atcctcttca atttgetcat 180
ctttctgtgt ggtgcagccc tgttggcagt gggcatctgg gtgtcaatcg atggggcatc 240
ctttctgaag atcttcgggc cactgtcgtc cagtgccatg cagtttgtca acgtgggcta 300
cttctcatc gcagccggcg ttgtggtctt tgctcttggg ttcctgggct gctatgggtg 360
taagacggag agcaagtgtg cctcgtgac gttctctctc atcctcctcc tcatcttcat 420
tgctgaagtt gcagctgctg tggtcgcctt ggtgtacacc acaatggctg aaccattcct 480
gacgttgctg gtantgctg ccatcaanaa agattatggg ttcccaggaa aaattcactc 540
aantntggaa caccnccatg aaaagggtc caatttctgn tggettcccc aactataccg 600
gaattttgaa agantcnccc tacttccaaa aaaaaanant tgcctttnc ccenttctgt 660
tgcaatgaaa acntccaan acngccaatn aaaacctgcc cnnncaaaaa ggntcncaaa 720

```

caaaaaaant nnaagggttn

740

<210> 18

<211> 802

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(802)

<223> n = A,T,C or G

<400> 18

ccgctggttg	cgctgggtcca	gngnagccac	gaagcacgtc	agcatacaca	gcctcaatca	60
caaggtcttc	cagctgccgc	acattacgca	gggcaagagc	ctccagcaac	actgcatatg	120
ggatacactt	tacttttagca	gccaggggtga	caactgagag	gtgtcgaagc	ttattcttct	180
gagcctctgt	tagtggagga	agattccggg	cttcagctaa	gtagtcagcg	tatgtcccat	240
aagcaaacac	tgtgagcagc	cggaaggtag	aggcaaagtc	actctcagcc	agctctctaa	300
cattgggcat	gtccagcagt	tctccaaaca	cgtagacacc	agnggcctcc	agcacctgat	360
ggatgagtgt	ggccagcgct	gcccccttgg	ccgacttggc	taggagcaga	aattgtcctt	420
ggttctgccc	tgtcaccttc	acttcgcgac	tcatcactgc	actgagtgtg	ggggacttgg	480
gctcaggatg	tccagagacg	tggttccgcc	ccctcnctta	atgacaccgn	ccanncaacc	540
gtcgggtccc	gccgantgng	ttcgtcgtnc	ctgggtcagg	gtctgtctgg	cnctacttgc	600
aancttcgtc	nggccccatg	aattcaccnc	accggaactn	gtangatcca	ctnnttctat	660
aaccggncgc	caccgcnnnt	ggaactccac	tctntntncc	tttacttgag	ggttaaggtc	720
acccttnncc	ttaccttggg	ccaaaccntn	centgtgtcg	anatngtnaa	tcnggncna	780
tnccancnc	atangaagcc	ng				802

<210> 19

<211> 731

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(731)

<223> n = A,T,C or G

<400> 19

cnaagcttcc	aggtnacggg	ccgcnaancc	tgaccnagg	tancanaang	cagnncgcgg	60
gagcccaccg	tcacngngng	gngtctttat	nggagggggc	ggagccacat	cnctggacnt	120
cntgacccca	actccccncc	ncncantgca	gtgatgagtg	cagaactgaa	ggtnacgtgg	180
caggaaccaa	gancaaannc	tgtccnntc	caagtcggcn	nagggggcgg	ggctggccac	240
gncatccnt	cnagtgtctg	aaagccccnn	cctgtctact	tgtttgagga	acngcnnga	300
catgcccagn	gttanataac	nggcngagag	tnantttgcc	tctcccttcc	ggctgcgcgn	360
cgngtntgct	tagnggacat	aacctgacta	cttaactgaa	ccnngaate	tnccnccct	420
ccactaagct	cagaacaaaa	aacttcgaca	ccactcantt	gtcacctgnc	tgctcaagta	480
aagtgtaccc	catncccaat	gtntgctnga	ngctctgncc	tgcnttangt	tcggctcctg	540
gaagacctat	caattnaagc	tatgtttctg	actgcctctt	gtccctgna	acaancnacc	600
cnncnntcca	agggggggnc	ggcccccaat	ccccccaacc	ntnaattnan	tttancccn	660
ccccngggc	cggcctttta	cnancntcnn	nnacngggna	aaaccnnngc	tttncccaac	720
naatccncc	t					731

<210> 20

<211> 754

<212> DNA

<213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(754)
 <223> n = A,T,C or G

<400> 20
 . tttttttttt tttttttttt taaaaacccc ctccattnaa tgnaaacttc cgaaattgtc 60
 caaccccctc ntccaaatnn ccntttccgg gnggggggtc caaacccaan ttanntttgg 120
 annttaaatt aaatnttntt tggngggnna anccnaatgt nangaaagt naaccanta 180
 tnancttnaa tncctggaaa ccngtngntt ccaaaaatnt ttaaccctta antccctccg 240
 aaatngttna nggaaaaccc aantttctnt aagggtgttt gaaggntnaa tnaaaanccc 300
 nnccaattgt ttttngccac gcctgaatta attggnttcc gntgttttcc nttaaaanaa 360
 gggnancccc gggtantnaa tccccccnnc cccaattata ccganttttt ttngaattgg 420
 gancccnccg gaattaacgg gggnnnntccc tnttgggggg cnggnncccc cccntccggg 480
 ggttngggnc aggnncnaat tgtttaaggg tccgaaaaat ccctccnaga aaaaaanctc 540
 ccaggntgag nntnggggtt ncccccccc canggccctt ctcgnanagt tgggggttgg 600
 ggggcctggg attttntttc ccttnttnc tcccccccc ccnggganag aggttngngt 660
 tttgntcnnc ggccccnccn aaganctttn ccganttnan ttaaatccnt gcctnggcga 720
 agtcenntgn agggntaaan ggccccctnn cggg 754

<210> 21
 <211> 755
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature.
 <222> (1)...(755)
 <223> n = A,T,C or G

<400> 21
 atcancccat gaccenaac nngggacnc tcancgggnc nnncnaccnc cggccnatca 60
 nngtnagnnc actncnnttn natcacnccc cncnactac gccnncnanc cnacgencta 120
 nncanatancc actganngcg cgangtngan ngagaaanct nataccanag ncaccanacn 180
 ccagctgtcc nanaangcct nnnatacnng nnnatccaat ntgnancctc cnaagtattn 240
 nncnncanat gattttccctn anccgattac ccntncccc tanccctcc cccccaacna 300
 cgaaggcnct ggncnnaagg nngcgnncnc ccgctagntc ccnncnaagt cncnnccta 360
 aactcanccn nattacnccg ttcttgagta tcactcccc aatctcacc tactcaactc 420
 aaaaanactn gatataaaat aatncaagcc tgnttatnac actntgactg ggtctctatt 480
 ttagnngtcc ntnaancntc ctaatacttc cagtctncc tcnccaattt cnaanggct 540
 ctttcngaca gcatnttttg gttcccnntt ggggtcttan ngaattgcc ttctntgaac 600
 gggctcntct tttccttcgg ttancctggg ttcnncggc cagttattat ttcctntttt 660
 aaattcntnc cntttanttt tggcnttcna aacccccggc cttgaaaacg gccccctggg 720
 aaaaggttgt tttganaaaa tttttgtttt gttcc 755

<210> 22
 <211> 849
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(849)
 <223> n = A,T,C or G

<400> 22
 tttttttttt tttttangtg tngtcgtgca ggtagaggct tactacaant gtgaanacgt 60
 acgtnggan taangcgacc cgantttctag ganncnccct aaatcanac tgtgaagatn 120

atcctgnnna	cggaanggtc	accggnngat	nntgctaggg	tgneenctec	cannncttn	180
cataactcng	nggcectgcc	caccaccttc	ggcgggccng	ngnccgggcc	cgggtcattn	240
gnnttaaccn	cactnngcna	neggtttccn	nccccnnng	accnnggcga	tccgggggtnc	300
tctgtcttcc	cctgnagncn	anaaantggg	ccncggnccc	ctttaccctt	nnacaagcca	360
cngccntcta	nccnengccc	ccccctccant	nnggggggact	gecnannget	cggtttctng	420
nnaccccnnn	gggtncctcg	gttgtcgant	cnaccgnang	ccanggattc	cnaaggaagg	480
tgcgttnttg	gccccatccc	ttegtncgg	nncacccttc	ccgacnanga	nccgctcccg	540
cnccnccgng	cctcncctcg	caacaccccg	ncctctcngt	nccggnnccc	ccccaccgcg	600
nccctcncnc	ngnccgnanc	ctccnccncc	gtctcannca	ccaccccgcc	cgcgccaggcc	660
ntcanccacn	ggngacnng	nagcnctntc	gncccgcgcn	gcgnctnccct	cgcncngaa	720
ctnctcngg	ccantnccgc	tcaancnna	cnaaacgcgc	ctgcgcggcc	cgnagcgncc	780
ncctcncga	gtcctcccg	cttcenaccc	angnnttcn	cgaggacacn	nnaccccgcc	840
nncangcgg						849

<210> 23

<211> 872

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(872)

<223> n = A,T,C or G

<400> 23

gcgcaaaacta	tacttcgctc	gnactcgtgc	gcctcgtcnc	tcttttcttc	cgcaaccatg	60
tctgacnanc	ccgattnggc	ngatatchan	aagntcganc	agtccaaact	gantaacaca	120
cacacnncan	aganaaatcc	nctgccttcc	anagtanacn	attgaacnng	agaaccangc	180
nggcgaatcg	taatnaggcg	tgcgcgcgcca	atntgtcncc	gtttattntn	ccagctcnc	240
ctnccnacc	tactcttccn	nagctgtcnn	accctngtn	cgnaccccc	naggtcggga	300
tgcgggtttnn	nntgaccgng	cnccccctcc	ccccctccat	nacganccnc	ccgcaccacc	360
nanngcnccg	nccccgnnct	cttcgcncnc	ctgtcctntn	ccccgtngc	ctggcncngn	420
accgcattga	ccctcgcenn	ctncnngaaa	nccnnaacgt	ccgggttggn	annancgctg	480
tgggnnnngcg	tctgcncgcg	gttccttccn	ncncttcca	ccatcttctt	tacnggggtct	540
ccncgccttc	tccnncaacnc	cctggggacgc	tnctctntgc	cccccttnac	tccccctctt	600
cgnccgtgnc	cgnccccacc	ntcatttnca	nacgntcttc	acaannncc	ggntnnctcc	660
cnaancngnc	gtcanccnag	ggaagggngg	ggnnccnntg	nttgacgttg	ngngangtc	720
cgaanantcc	tccntccan	cncctaccct	cggcggnnct	ctcngttnc	aacttancaa	780
ntctcccccg	ngngcncntc	tcagcctcnc	ccnccccnct	ctctgcantg	tnctctgctc	840
tnaccnntac	gantnttcgn	cncctctctt	cc			872

<210> 24

<211> 815

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(815)

<223> n = A,T,C or G

<400> 24

gcatgcaagc	ttgagtattc	tatagngtca	cctaaatanc	ttggcntaat	catggtcnta	60
nctgncttcc	tgtgtcaa	gtatacnaa	tanatatgaa	tctnatntga	caaganngt	120
tctnccatta	gtaacaantg	tnntgtccat	cctgtcngan	canattccca	tnnattncgn	180
cgcattcncn	gencantatn	taatngggaa	ntcnntnnnn	ncaccnncat	ctatctntcc	240
gncctctgac	tggnagagat	ggatnanttc	tnntntgacc	nacatgttca	tcttggtatn	300
aanaccccc	cgcngnccac	cggttngnng	cnagccnntc	ccaagacctc	ctgtggaggt	360

aacctgcgtc	aganncatca	aacntgggaa	accgcgnncc	angtnnaagt	ngnnnncanan	420
gatcccgctc	aggnttnacc	atcccttcnc	agcgccccct	ttngtgcctt	anagngnagc	480
gtgtccnanc	cncatcaacat	ganacgcgcc	agnccanceg	caattnggca	caatgtcgnc	540
gaaccccccta	gggggantna	tncaaanccc	caggattgtc	cncncangaa	atcccnanc	600
ccnccctac	ccncttttg	gacngtgacc	aantcccgga	gtncagtc	ggcngnctc	660
ccccaccggt	nncntgggg	gggtgaanct	cngnntcanc	cngncgaggn	ntcgnaagga	720
accggncctn	ggncgaanng	ancnntcnga	agngccnct	cgtataaccc	cccctcncca	780
nccnacngnt	agntcccccc	cngggtnccg	aangg			815

<210> 25

<211> 775

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(775)

<223> n = A,T,C or G

<400> 25

ccgagatgtc	tcgtcccggtg	gccttagctg	tgctcgcgct	actctctctt	tctggcctgg	60
aggetatcca	gcgtactcca	aagattcagg	tttactcacg	tcattccagca	gagaatggaa	120
agtcaaattt	cctgaattgc	tatgtgtctg	ggtttcatcc	atccgacatt	gaanttgcct	180
tactgaagaa	tgganagaga	attgaaaaag	tggagcattc	agacttgtct	ttcagcaagg	240
actggctctt	ctatctcntg	tactacactg	aattcacccc	caatgaaaaa	gatgagtatg	300
cctgccggtg	gaaccatgtg	actttgtcac	agcccaagat	agttaagtgg	gatcgagaca	360
tgtaagcagn	cnnatgggaa	gtttgaagat	gccgcatttg	gattggatga	attccaaatt	420
ctgcttgctt	gcnttttaat	antgatatgc	ntatacaccc	taccttttat	gncccccatt	480
tgtaggggtt	acatnantgt	tcnctntnga	catgatcttc	ctttataant	ccnccnttcg	540
aattgcccgt	cncnngntn	ngaattgttc	cnaaccacg	gttggctccc	ccaggtcncc	600
tcttacggaa	gggcctgggc	cnccttncaa	ggttggggga	accnaaaatt	tcnctnttgc	660
ccncccncca	cnntcttgng	nncncanttt	ggaacccttc	cnattccccct	tgccctcnna	720
nccttnncta	anaaaacttn	aaancgtngc	naaanntttt	acttcccccc	ttacc	775

<210> 26

<211> 820

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(820)

<223> n = A,T,C or G

<400> 26

anattantac	agtgtaatct	tttcccagag	gtgtgtanag	ggaacggggc	ctagaggcat	60
cccanagata	ncttatanca	acagtgcctt	gaccaagagc	tgctggggcac	atttcctgca	120
gaaaagggtg	cggtccccc	cactcctcct	ctcccatagc	catcccagag	gggtgagtag	180
ccatcangcc	ttcggtggga	gggagtcang	gaaacaacan	accacagagc	anacagacca	240
ntgatgacca	tgggcgggag	cgagcctctt	ccctgnaccg	gggtggcana	nganagccta	300
nctgaggggt	cacactataa	acgttaacga	ccnagatnan	cacctgcttc	aagtgcaccc	360
ttcctacctg	acnaccagng	accnnaact	gcngcctggg	gacagcnctg	ggancagcta	420
acnnagcact	cacctgcccc	cccatggcgg	tnccgntccc	tggtcctgnc	aagggaagct	480
ccctgttgga	attncgggga	naccaaggga	nccccctcct	ccanctgtga	aggaaaaann	540
gatggaattt	tncccttcgg	gcenntcccc	tcttccctta	cacgccccct	nntactcntc	600
tccctctntt	ntcctgnenc	acttttnacc	ccnnnatctt	ccttnattga	tcggannctn	660
ganattccac	tnncgcctnc	cntcnatcng	naanaacnaa	nactntctna	cccnggggat	720
gggnncctcg	ntcatcctct	ctttttcnct	accnccnntt	ctttgcctct	ccttngatca	780

tccaacentic gntggccntn cccccccnnn tccttttcccc

820

<210> 27
 <211> 818
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (818)
 <223> n = A,T,C or G

<400> 27
 tctgggtgat ggcctcttcc tcctcagggg cctctgactg ctctggggcca aagaatctct 60
 tgtttcttct ccgagcccca ggcagcgggt attcagccct gcccaacctg attctgatga 120
 ctgcgggatgc tgtgacggac ccaaggggca aataggggtc caggggtccag ggaggggagc 180
 ctgctgagca cttccgcccc tcacctgcc cagccctgc catgagctct gggtgggtc 240
 tccgcctcca ggggttctgt cttccangca ngccancaa tggcgctggg ccacactggc 300
 ttcttctctg cccntccctg gctctganc tctgtcttcc tgtcctgtgc angcnccttg 360
 gatctcagtt tccctcctc anngaactct gtttctgann tcttcantta actntgantt 420
 tatnacnnan tggntctgtc tgtcnnactt taatggggccn gaccgggctaa tccctccctc 480
 nctcccttcc anttcnnnna accngcttnc cntctctctc ccntancccg ccnggggaanc 540
 ctcccttgcc ctnaccangg gccnnnaccg ccctnnctn gggggggcng gtnnctnnc 600
 ctgntnnccc cctcncnnt tncctctgccc cncnncgen nngcannttc nngtcccn 660
 tnnctcttcn ngntctgnaa ngntcncntn tnnnnngncn ngntnntnnc tccctctcnc 720
 cnnntgnang tnnntnnnnc ncngnncccc nnnnnnnnn nggnnnntnn tctnncngc 780
 cccnncccc ngnattaagg cctcnnctc ccggccnc 818

<210> 28
 <211> 731
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (731)
 <223> n = A,T,C or G

<400> 28
 aggaagggcg gagggatatt gtangggatt gagggatagg agnataangg gggaggtgtg 60
 tccaacatg anggtgnngt tctcttttga angaggggtg ngtttttann ccnggtgggt 120
 gattnaaccc cattgtatgg agnnaaagg ttttagggat ttttcggctc ttatcagtat 180
 ntanattcct gtnaatcgga aaatnatntt tcnnncggaa aatnttgctc ccatccgnaa 240
 attnctcccg ggtagtgcatt ntnggggggn cngccangtt tcccaggtc ctanaatcgt 300
 actaaagntt naagtggan tncaaatgaa aacctnncac agagnatccn taccgactg 360
 tnnnttccct tcgcccctng actctgcng agcccaatac ccngngnat gtcnccnng 420
 nnngcgnnc tgaannnnnc tcngggctnn gancatcang ggggttcgca tcaaaagcnn 480
 cgtttcncat naaggcactt tngcctcctc caaccnctng cctcnncca tttngcgcgc 540
 nggttcncct acgtntntng cncctnnntn ganattttnc ccgctnggg naancctcct 600
 gnaatgggta gggnccttntc ttttnaccnn gnggtntact aatcnnctnc acgcntnctt 660
 tctnaccccc cccctttttt caatcccanc ggcnaatggg gtctcccnng cgangggggg 720
 nnncccnnc c 731

<210> 29
 <211> 822
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(822)
 <223> n = A,T,C or G

<400> 29
 actagtccag tgtgggtggaa ttccattgtg ttgggggnenc ttctatgant antnttagat 60
 cgctcanacc tcacancctc ccnacnangc ctataangaa nannaataga nctgtncnnt 120
 atntntacnc tcatannect cnnnacccac tccctcttaa ccctactgt gcctatngcn 180
 tnntantct ntgccgctn cnanccaccn gtgggcccac cncnngnatt ctcnatctcc 240
 tenccatntn gcctananta ngtncatacc ctatacctac nccaatgcta nnnctaancn 300
 tccatnantt annntaacta ccactgacnt ngactttcnc atnanctcct aatttgaatc 360
 tactctgact cccacngcct annnattagc ancttcccc nacnatntct caaccaaate 420
 ntcaacaacc tatctanctg ttcnccaacc nttncctccg atccccnnac aacccccctc 480
 ccaaataccc nccacctgac ncctaaccen caccatcccg gcaagccnan ggncatttan 540
 ccactggaat cacnatngga naaaaaaaaa ccnaactctc tancncnnat ctccctaana 600
 aatnctectn naatttactn ncantnccat caancccaen tgaaacnnaa cccctgtttt 660
 tanatccctt ctttcgaaaa ccnacccttt annncccaac ctttngggcc ccccnctnc 720
 ccnaatgaag gncncccaat cnangaaagc nccntgaaaa ancnaaggcna anannntccg 780
 canatcctat cccttanttn ggggnccctt nccngggg cc 822

<210> 30
 <211> 787
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(787)
 <223> n = A,T,C or G

<400> 30
 cgggcgctg ctctggcaca tgctctctga atggcatcaa aagtgatgga ctgcccattg 60
 ctagagaaga ccttctctcc tactgtcatt atggagccct gcagactgag ggctcccctt 120
 gtctgcagga tttgatgtct gaagtcgtgg agtgtggctt ggagctctc atctacatna 180
 gctggaagcc ctggagggcc tctctcgcca gcctccccct tctctccaag ctctccangg 240
 acaccagggg ctccaggcag cccattattc ccagnangac atgggtgttc tccacgcgga 300
 cccatggggc ctgnaaggcc aggggtctct ttgacaccat ctctcccgtc ctgcctggca 360
 ggccgtggga tccactantt ctanaacggg cgccaccnec gtgggagctc cagcttttgt 420
 tccnttaat gaaggttaat tgcncgcttg gcgtaatcat nggtcanaac tnttctctgt 480
 gtgaaattgt ttntccccct ncnattccnc ncnacatacn aacccggaan cataaagtgt 540
 taaagcctgg gggtngectn nngaataaac tnaactcaat taattgcgtt ggctcatggc 600
 ccgctttccn ttcnngaaaa ctgtctntccc ctgcnttntt gaatcgggca cccccnggg 660
 aaaagcgggt tgcnttttng ggggntcctt ccncttcccc cctcnctaan cccnccgct 720
 cggtcgttnc nggtngcggg gaangggnat nnnctccnc naagggggng agnnngntat 780
 ccccaaa 787

<210> 31
 <211> 799
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(799)
 <223> n = A,T,C or G

<400> 31

tttttttttt	tttttttggc	gatgctactg	tttaattgca	ggaggtgggg	gtgtgtgtac	60
catgtaccag	ggctattaga	agcaagaagg	aaggaggag	ggcagagcgc	cctgctgagc	120
aacaaaggac	tcctgcagcc	ttctctgtct	gtctcttggc	gcaggcacat	ggggaggcct	180
cccgagggt	ggggggccacc	agtcacaggg	tgggagcact	acanggggtg	ggagtgggtg	240
gtggctggt	cnaatggcct	gncacanatc	cctacgattc	ttgacacctg	gatttcacca	300
ggggaccttc	tgttctccca	nggnaacttc	ntnnatctcn	aaagaacaca	actgtttctt	360
cngcanttct	ggctgttcat	ggaaagcaca	ggtgtccnat	ttnggctggg	acttggtaca	420
tatggttccg	gcccacctct	ccntcnaa	aagtaattca	cccccccccn	ccntctnttg	480
cctgggccct	taantacca	caccggaact	canttanta	ttcatcttng	gntgggcttg	540
ntnatcnecn	cctgaangcg	ccaagttgaa	aggccacgcc	gtncnccnctc	cccatagnan	600
ntttttnnct	canctaagtc	ccccccnggc	aacnatccaa	cccccccccn	tgggggcccc	660
agcccanggc	ccccgnetcg	ggnnncnngn	cncgnantcc	ccaggntctc	ccantcngnc	720
ccnnngcncc	cccgacgcga	gaacanaagg	ntngagccnc	cgcannnnnn	nggttnncnac	780
ctcgcccccc	ccnncgng					799

<210> 32

<211> 789

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(789)

<223> n = A,T,C or G

<400> 32

tttttttttt	ttttttt	tttttttttt	tttttttttt	tttttttttt	tttttttttt	60
ttttnccnag	ggcagggtta	ttgacaacct	cncgggacac	aancaggctg	gggacaggac	120
ggcaacaggc	tccggcgggcg	gcggcgggcg	ccctacctgc	ggtaccaa	ntgcagcctc	180
cgctcccgc	tgatnttcc	ctgcagctgc	aggatgcct	aaaacagggc	ctcgccctn	240
ggtgggcacc	ctgggatttn	aatttccacg	ggcacaatgc	ggtcgcance	cctcaccacc	300
nattaggaat	agtggtntta	ccnccnccg	ttggcncact	cccentggaa	accacttntc	360
gcggctccgg	catctggtct	taaaccttgc	aaacnctggg	gccctctttt	tggttantnt	420
ncnngccaca	atcatnactc	agactggcnc	gggctggccc	caaaaaan	ccccaaaacc	480
ggncatgtc	ttncgggggt	tgctgcnatn	tncatcacct	cccgggcnca	ncaggncaac	540
ccaaaagtgc	ttgngggccn	caaaaaanct	ccggggggnc	ccagtttcaa	caaagtcac	600
ccccttggcc	cccaaatcct	ccccccgntt	netgggtttg	ggaaccacag	cctctnnctt	660
tggngggcaa	gntggntccc	ccttcggggc	ccgggtgggc	ccnctcttaa	ngaaaacncc	720
ntcctnnnca	ccatcccccc	nngnnacgnc	tancaangna	tccctttttt	tanaaacggg	780
ccccccnccg						799

<210> 33

<211> 793

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(793)

<223> n = A,T,C or G

<400> 33

gacagaacat	ggtggatggt	ggagcacctt	tctatacgac	ttacaggaca	gcagatgggg	60
aattcatggc	tggtggagca	atanaacccc	agttctacga	gctgctgac	aaaggacttg	120
gactaaagtc	tgatgaactc	cccaatcaga	tgagcatgga	tgattggcca	gaaatgaana	180
agaagtttgc	agatgtat	gcaaagaaga	gtggtgtcaa	atctttgacg		240
gcacagatgc	ctgtgtgact	ccggttctga	cttttgagga	ggttggtcat	catgatcaca	300
acaangaacg	gggctcggtt	atcaccantg	aggagcagga	cgtgagcccc	cgcctgcac	360

ctctgctggt	aaacaccccca	gccatccctt	ctttcaaaag	ggatccacta	cttctagagc	420
ggncgccacc	gcggtggagc	tccagctttt	gttcccttta	gtgagggtta	attgcgcgct	480
tggcgtaatc	atggtcatan	ctgtttcctg	tgtgaaattg	ttatccgctc	acaattccac	540
acaacatacg	anccggaagc	atnaaatttt	aaagcctggn	ggtngcctaa	tgantgaact	600
nactcacatt	aattggcttt	gcgctcactg	cccgttttcc	agtcggaata	acctgtcctt	660
gccagctgcc	nttaatgaat	cnggccaccc	cccggggaaa	aggcngtttg	cttnttgggg	720
cgcncctccc	gctttctcgc	ttcctgaant	ccttcccccc	ggtctttcgg	cttgcggcna	780
acggtatcna	cct					793

<210> 34
 <211> 756
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1) ... (756)
 <223> n = A,T,C or G

<400> 34	
gccgcgaccg	gcatgtacga
ancaagtgcg	gggaanagct
ccaaccacag	ggaccaagct
atcgggggccc	aatggagcat
cagctcaaat	gctactactt
cagctcttgg	gcctcaacct
acgganttgg	ancggctgcc
gtgtcctgga	gcaatactga
catccccgcg	cgagagctac
aaaatcgcn	ggttgctcca
atnncntagt	nctagaatcg
ttactgaggg	tnnattgcgg
aattnttaac	ccccacaaat
gcaactcaag	ggcgagtggga
gggtcgactc	aagctagtgc
gaccaaacag	cagctaattc
cctacgcaan	gacatcccc
tgattacaan	gagcagctcc
cctcttcctg	ctgtcccaga
tgcccaanga	catacanacc
tgganggcag	ctaccncaaa
accttcttca	ttgacatcct
gaaaggctnc	aanaanatcc
gccccccatc	gcggtgganc
cccttggcgt	tatcatggtc
tccacgcena	catnng
ccccaatctt	60
caacttcttg	120
catactggag	180
ctacatggcc	240
ctatatgcac	300
tgantnccac	360
tcnaccacca	420
ccnagggtaa	480
atcagggatg	540
aggcccccg	600
tcgttnccct	660
cctgtgttga	720
	756

<210> 35
 <211> 834
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1) ... (834)
 <223> n = A,T,C or G

<400> 35	
ggggatctct	anactnacct
aacaggatct	tgcccttgaa
tagtcagaca	cncctctggg
aatcttcnng	cgtgtctgct
aaantccanc	angttctcct
cttctnnaan	angannance
ggaaactgat	cccaaattgg
ggcncaaate	cgactcccn
nncaangact	ctnccgctnc
ttcttcagcc	agttcactat
ggaanccgct	tctcccttcc
acntnctggg	ccgggttcaa
nccnaacttt	ttccttcccc
gnatgcatgg	ttgtcggtgt
gctgtnttta	agttgctcag
caggatntga	gtcttgattt
gatgacnang	ggcagctggg
cccttcaaa	ttgttccggc
gagctggnat	ttgganaaca
tcgcctctgc	tgccctgcaa
aagccnatca	cacccccctc
caggggttgg	ggcannccgg
ccctctgcca	gctgtnttat
ttgaccgtng	gaatagccgc
ttgncnntcn	cctcgggcca
ngtttggntt	tttcatnggg
gatgaanatg	60
tctgcccgtca	120
cacctccaat	180
tgtgtntgat	240
cttcatcaaa	300
cgctactgtt	360
aaacttgctt	420
cctggactcc	480
gcccntgcgc	540
tccttggggg	600
gcntcncnt	660
ttctggattt	720
ccccaaactct	780

gctnttggcc antcccttgg gggcntntan cccccctnt ggtcccntng ggcc

834

<210> 36

<211> 814

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(814)

<223> n = A,T,C or G

<400> 36

cggnccgcttt	ccngccgcgc	cccgtttcca	tgacnaaggc	tcccttcang	ttaaatacnn	60
cctagnaaac	attaatgggt	tgctctacta	atacatcata	cnaaccagta	agcctgcca	120
naacgccaac	tcaggccatt	cctaccaaag	gaagaaaggc	tggtctctcc	acccctgta	180
ggaaaggcct	gccttgtaag	acaccacaat	ncggctgaat	ctnaagtctt	gtgttttact	240
aatggaaaaa	aaaaataaac	aanagggttt	gttctcatgg	ctgcccaccg	cagcctggca	300
ctaaaacanc	ccagcgctca	cttctgcttg	ganaaatatt	ctttgctctt	ttggacatca	360
ggcttgatgg	tatcaactgcc	acntttccac	ccagctgggc	ncccttcccc	catntttgtc	420
antganctgg	aaggcctgaa	ncttagtctc	caaaagtctc	ngcccacaag	accggccacc	480
aggggagtc	ntttncagtg	gatctgccaa	anantaccn	tatcatcnnt	gaataaaaag	540
gcccctgaac	ganatgcttc	cancancctt	taagacccat	aatectngaa	ccatggtgcc	600
cttccggtct	gatecnaaag	gaatgttctt	gggtcccant	ccctcctttg	ttnccttacgt	660
tgtnttggac	cctgtctngn	atnacccean	tganatcccc	ngaagcacc	tncccttggc	720
atttganttt	cntaaattct	ctgccctacn	nctgaaagca	cnattccctn	ggcncnnaan	780
ggngaactca	agaagggtctn	ngaaaaacca	cncn			814

<210> 37

<211> 760

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(760)

<223> n = A,T,C or G

<400> 37

gcatgctgct	cttcctcaaa	gttgttcttg	ttgccataac	aaccaccata	ggtaaagcgg	60
gcgagtggt	cgctgaagg	gttgtagtac	cagcgcgga	tgctctcctt	gcagagtcct	120
gtgtctggca	ggtccacgca	atgccctttg	tcactgggga	aatggatgcg	ctggagctcg	180
tcnaanccac	tcgtgtattt	ttcacangca	gcctcctccg	aagcntccgg	gcagttgggg	240
gtgtcgtcac	actccactaa	actgtcgatn	cancagccca	ttgctgcagc	ggaactgggt	300
gggctgacag	gtgccagaac	acactggatn	ggcctttcca	tggaagggcc	tgggggaaat	360
cncctnancc	caaactgcct	ctcaaaggcc	accttgccca	ccccgacagg	ctagaaatgc	420
actcttcttc	ccaaaggtag	ttgttcttgt	tgcccaagca	ncctccanca	aaccaaaanc	480
ttgcaaaaac	tgctccgtgg	gggtcatnnn	taccanggtt	ggggaaanaa	acccggcngn	540
ganccnccct	gtttgaatgc	naaggnaata	atcctcctgt	cttgcttggg	tggaanagca	600
caattgaact	gttaacnttg	ggccgngtgc	cncnnggggtg	gtctgaaact	aatcacgcgc	660
actggaaaaa	ggtangtgcc	ttccttgaat	tccc aaantt	cccctngntt	tgggtntttt	720
ctcctctncc	ctaaaaatcg	tnttcccccc	centanggcg			760

<210> 38

<211> 724

<212> DNA

<213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(724)
 <223> n = A,T,C or G

<400> 38
 tttttttttt tttttttttt tttttttttt ttttttaaaaa cccctccat tgaatgaaaa 60
 ctccnaaat tgtccaaccc cctcnnccaa atnnccattt ccgggggggg gttccaaacc 120
 caaattaatt ttgganttta aattaaatnt tnatnngggg aanaanccaa atgtnaagaa 180
 aatttaaccc attatnaact taaatncctn gaaaccctg gnttccaaaa atttttaacc 240
 cttaaatccc tccgaaattg ntaanggaaa accaaattcn cctaaggctn tttgaagggt 300
 ngatttaaac ccccttnant tnttttnacc cnnngctnaa ntatttngnt tccggtgttt 360
 tcctnttaan cntnggtaac tcccgnataat gaannncctt aanccaatta aaccgaattt 420
 tttttgaatt ggaaattccn ngggaattna ccgggggttt tccentttgg gggccatncc 480
 cccnctttcg ggggtttgggn ntaggttgaa tttttnnang ncccaaaaaa ncccccaana 540
 aaaaaactcc caagnnttaa ttngaantnc ccccttccca ggccttttgg gaaaggnggg 600
 tttntggggg ccngggantt cnttcccccn ttncncccc cccccnggt aaanggttat 660
 ngnnnttggt ttttgggccc cttnanggac cttccggatn gaaattaaat ccccggnncg 720
 gccg 724

<210> 39
 <211> 751
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(751)
 <223> n = A,T,C or G

<400> 39
 tttttttttt tttttctttg ctcacattta atttttattt tgattttttt taatgctgca 60
 caacacaata tttatttcat ttgtttcttt tatttcattt tatttgttg ctgctgctgt 120
 tttatttatt tttactgaaa gtgagaggga acttttgtgg ccttttttcc tttttctgta 180
 ggccgcctta agctttctaa atttggaaca tctaagcaag ctgaanggaa aaggggggtt 240
 cgcaaatca ctcgggggaa nggaaagggt gctttgttaa tcatgcccta tgggtgggtga 300
 ttaactgctt gtacaattac ntttcacttt taattaattg tgetnaangc ttaattana 360
 cttggggggt cccctcccan accaaccnccn ctgacaaaaa gtgccngccc tcaaatanatg 420
 tcccgcnnt cnttgaaaca cacngcngaa ngttctcatt ntcccncnc caggtnaaaa 480
 tgaagggtta ccatnttaa cncacctcc acntggcnnn gcctgaatcc tcnaaaancn 540
 ccccaancn aattnctnng ccccggtcnc gentnngtcc cnccegggt cggggaantn 600
 cccccnga anncnntnnc naacnaaatt ccgaaaatat tccnntcnc tcaattcccc 660
 cnnagactnt cctcnnncn cncaattttc ttttnntcac gaacncgnnc cnnaaatgn 720
 nnnncnctc cnctngtccn naatcnccan c 751

<210> 40
 <211> 753
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(753)
 <223> n = A,T,C or G

<400> 40
 gtgggtattt ctgtaagatc aggtgttcct cctcgtagg ttagaggaa acaccctcat 60
 agatgaaaac cccccgaga cagcagcact gcaactgcc aagcagccgg gtagggggg 120

cgccctatgc	acagctgggc	ccttgagaca	gcagggcttc	gatgtcaggc	tcgatgtcaa	180
tgggtctggaa	gcggcggtg	tacctgcgta	ggggcacacc	gtcagggccc	accaggaact	240
tctcaaagtt	ccaggcaacn	tcgttgcgac	acaccggaga	ccaggtgatn	agcttggggt	300
cggtcataa	cgcggtggcg	tcgtcgctgg	gagctggcag	ggcctcccgc	aggaaggcna	360
ataaaaggtg	cgcccccgca	cggttcanct	cgcacttctc	naanaccatg	angttgggct	420
cnaaccacc	accannccg	acttccctga	nggaattccc	aaatctcttc	gntcttgggc	480
ttctnctgat	gccttancg	gttgcctngn	atgccaanca	nccccaance	ccgggggtct	540
aaancacccn	cctctcctt	tcctctgggt	tnttntoccc	ggacctgggt	tcctctcaag	600
ggancccata	tctcnaccan	tactcacent	nccccccent	gnnaccanc	cttctanngn	660
ttccncccg	ncctctggcc	cntcaaan	gcttnacacna	cctgggtctg	ccttcccccc	720
tncctatct	gnacccn	tttgtctcan	tnt			753

<210> 41

<211> 341

<212> DNA

<213> Homo sapien

<400> 41

actatatcca	tcacaacaga	catgcttcat	cccatagact	tcttgacata	gcttcaaagt	60
agtgaaccca	tccttgattt	atatacatat	atgttctcag	tattttggga	gcctttccac	120
ttctttaaac	cttggtcatt	atgaacactg	aaaataggaa	tttgtgaaga	gttaaaaagt	180
tatagcttgt	ttacgtagta	agtttttgaa	gtctacattc	aatccagaca	cttagttgag	240
tgttaaactg	tgatttttaa	aaaatatcat	ttgagaatat	tctttcagag	gtattttcat	300
ttttactttt	tgattaattg	tgttttatat	attagggtag	t		341

<210> 42

<211> 101

<212> DNA

<213> Homo sapien

<400> 42

acttactgaa	tttagttctg	tgtcttctct	tatttagtgt	tgtatcataa	atactttgat	60
gtttcaaaca	ttctaaataa	ataattttca	gtgggttcat	a		101

<210> 43

<211> 305

<212> DNA

<213> Homo sapien

<400> 43

acatctttgt	tacagtctaa	gatgtgttct	taaatcacca	ttccttctctg	gtcctcaccc	60
tccaggggtg	tctcacactg	taattagagc	tattgaggag	tctttacagc	aaattaagat	120
tcagatgcct	tgctaagtct	agagttctag	agttatgttt	cagaaagtct	aagaaaccca	180
cctcttgaga	ggtcagtaaa	gaggacttaa	tatttcatat	ctacaaaatg	accacaggat	240
tgatacaga	acgagagtta	tcctggataa	ctcagagctg	agtacctgcc	cggggggccgc	300
tcgaa						305

<210> 44

<211> 852

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (852)

<223> n = A,T,C or G

<400> 44

acataaaatat	cagagaaaag	tagtctttga	aatattttacg	tccaggagtt	ctttgtttct	60
gattattttgg	tgtgtgtttt	ggtttgtgtc	caaagtattg	gcagcttcag	ttttcatttt	120
ctctccatcc	tcgggcattc	ttcccaaatt	tataaccag	tcttcgtcca	tccacacgct	180
ccagaatttc	tctttttag	taatatctca	tagctcggct	gagcttttca	taggtcatgc	240
tgctgttgtt	cttcttttta	ccccatagct	gagccactgc	ctctgatttc	aagaacctga	300
agacgccctc	agatcgggtc	tcccatttta	ttaatcctgg	gttcttgtct	gggttcaaga	360
ggatgtcgcg	gatgaattcc	cataagttag	tccctctcgg	gttgtgcttt	ttggtgtggc	420
acttggcagg	gggtcttgc	tcctttttca	tatcagggtga	ctctgcaaca	ggaaggtgac	480
tggtggttgt	catggagatc	tgagcccggc	agaaagtttt	gctgtccaac	aaatctactg	540
tgctaccata	gttgggtgtc	tataaatagt	tctngtcttt	ccagggtgtc	atgatggaag	600
gctcagtttg	ttcagtcttg	acaatgacat	tgtgtgtgga	ctggaacagg	tcactactgc	660
actggccggt	ccacttcaga	tgctgcaagt	tgctgtagag	gagntgcccc	gccgtccctg	720
ccgcccgggt	gaactcctgc	aaactcatgc	tgcaaagggt	ctcgccgttg	atgtcgaact	780
cntggaaaag	gatacaattg	gcatccagct	ggttggtgtc	caggagggtga	tggagccact	840
ccccacacctg	gt					852

<210> 45

<211> 234

<212> DNA

<213> Homo sapien

<400> 45

acaacagacc	cttgctcgct	aacgacctca	tgctcatcaa	gttggacgaa	tccgtgtccg	60
agtctgacac	catccggagc	atcagcattg	cttcgcagtg	ccctaccgcg	gggaactctt	120
gcctcgtttc	tggtctgggt	ctgctggcga	acggcagaat	gcctaccgtg	ctgcagtgcg	180
tgaacgtgtc	ggtggtgtct	gaggaggctc	gcagtaagct	ctatgacccg	ctgt	234

<210> 46

<211> 590

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(590)

<223> n = A,T,C or G

<400> 46

acttttttatt	taaatgttta	taaggcagat	ctatgagaat	gatagaaaac	atgggtgtgta	60
atttgatagc	aatatttttg	agattacaga	gttttagtaa	ttaccaatta	cacagttaaa	120
aagaagataa	tatattccaa	gcanatacaa	aatatcta	gaaagatcaa	ggcaggaaaa	180
tgantataac	taattgacaa	tggaaaatca	attttaatgt	gaattgcaca	ttatccttta	240
aaagctttca	aaanaanaa	ttattgcagt	ctanttaatt	caaacagtgt	taaatgggtat	300
caggataaan	aactgaagg	canaaaaga	taattttcac	ttcatgtaac	ncacccanat	360
ttacaatggc	ttaaatgcan	ggaaaaagca	gtggaagtag	ggaagtantc	aagggtctttc	420
tggtctctaa	tctgccttac	tctttgggtg	tggtcttgat	cctctggaga	cagctgccag	480
ggctcctgtt	atatccacaa	tcccagcagc	aagatgaagg	gatgaaaaag	gacacatgct	540
gccttccttt	gaggagactt	catctcactg	gccaacactc	agtcacatgt		590

<210> 47

<211> 774

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(774)

<223> n = A,T,C or G

<400> 47
 acaagggggc ataatgaagg agtgggggana gatttttaaag aaggaaaaaa aacgaggccc 60
 tgaacagaat tttcctgnac aacggggcct caaaataatt ttcttgggga gggtcaagac 120
 gcttcactgc ttgaaactta aatggatgtg ggacanaatt ttctgtaatg accctgaggg 180
 cattacagac gggactcttg gaggaaggat aaacagaaaag gggacaaaagg ctaatcccaa 240
 aacatcaaag aaaggaaggt ggcgtcatac ctcccagcct acacagttct ccagggtctct 300
 cctcatccct ggaggacgac agtggaggaa caactgacca tgtccccagg ctctgtgtg 360
 ctggctcctg gtcttcagcc cccagctctg gaagcccacc ctctgtgat cctgctggc 420
 ccacactcct tgaacacaca tccccaggtt atattcctgg acatggctga acctcctatt 480
 cctacttccg agatgccttg ctccctgcag cctgtcaaaa tcccactcac cctccaaacc 540
 acggcatggg aagcctttct gacttgcttg attactccag catcttggaa caatccctga 600
 ttccccactc cttagaggca agataggggtg gttaagagta gggctggacc acttgagacc 660
 aggctgctgg cttcaaattt tggtcattt acgagctatg ggaccttggg caagtnatct 720
 tcacttctat gggcntcatt ttgttctacc tgcaaaatgg gggataataa tagt 774

<210> 48

<211> 124

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(124)

<223> n = A,T,C or G

<400> 48
 canaaattga aattttataa aaaggcattt ttctcttata tccataaaat gatataattt 60
 ttgcaantat anaaatgtgt cataaattat aatgttcctt aattacagct caacgcaact 120
 tggt 124

<210> 49

<211> 147

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(147)

<223> n = A,T,C or G

<400> 49
 gccgatgcta ctattttatt gcaggaggtg ggggtgtttt tattattctc tcaacagctt 60
 tgtggctaca ggtggtgtct gactgcatna.aaaanttttt tacgggtgat tgcaaaaatt 120
 ttagggcacc catatcccaa gcantgt 147

<210> 50

<211> 107

<212> DNA

<213> Homo sapien

<400> 50
 acattaaatt aataaaagga ctgttgggggt tctgctaaaa cacatggctt gatatatgtc 60
 atggtttgag gttaggagga gttaggcata tgttttggga gaggggt 107

<210> 51

<211> 204

<212> DNA

<213> Homo sapien

<400> 51

gtcctaggaa	gtctagggga	cacacgactc	tgggggtcacg	gggccgacac	acttgacagg	60
cgggaaggaa	aggcagagaa	gtgacaccgt	cagggggaaa	tgacagaaag	gaaaatcaag	120
gccttgcaag	gtcagaaagg	ggactcaggg	cttcaccac	agccctgccc	cacttgacca	180
cctccctttt	gggaccagca	atgt				204

<210> 52

<211> 491

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(491)

<223> n = A,T,C or G

<400> 52

acaaagataa	catttatctt	ataacaaaaa	tttgatagtt	ttaaagggtta	gtattgtgta	60
gggtattttc	caaaagacta	aagagataac	tcaggtaaaa	agttagaaat	gtataaaaaca	120
ccatcagaca	ggttttttaa	aaacaacata	ttacaaaatt	agacaatcat	ccttaaaaaa	180
aaaacttctt	gtatcaattt	cttttggtca	aaatgactga	cttaantatt	tttaaattatt	240
tcaaaaacac	ttcctcaaaa	attttcaana	tggtagcttt	canatgtnc	ctcagtcacca	300
atgttgctca	gataaataaa	tctcgtgaga	acttaccacc	caccacaagc	tttctggggc	360
atgcaacagt	gtcttttctt	tnctttttct	ttttttttt	ttacaggcac	agaaactcat	420
caattttatt	tggataacaa	agggtctcca	aattatattg	aaaaataaat	ccaagttaat	480
atcactcttg	t					491

<210> 53

<211> 484

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(484)

<223> n = A,T,C or G

<400> 53

acataattta	gcagggctaa	ttaccataag	atgctattta	ttaanaggtn	tatgatctga	60
gtattaacag	ttgctgaagt	ttgggtattt	tatgcagcat	tttctttttg	ctttgataac	120
actacagaac	ccttaaggac	actgaaaatt	agtaagtaaa	gttcagaaac	attagctgct	180
caatcaaate	tctacataac	actatagtaa	ttaaaacgtt	aaaaaaaaag	gttgaaatct	240
gcactagtat	anaccgctcc	tgtcaggata	anactgcttt	ggaacagaaa	gggaaaaanc	300
agctttgant	ttctttgtgc	tgatangagg	aaaggctgaa	ttaccttggt	gcctctccct	360
aatgattggc	aggctnggta	aatnccaaaa	catattccaa	ctcaacactt	cttttcnccg	420
tancttgant	ctgtgtattc	caggancagg	cggatggaat	gggccagccc	ncggatgttc	480
cant						484

<210> 54

<211> 151

<212> DNA

<213> Homo sapien

<400> 54

actaaacctc	gtgcttggtga	actccataca	gaaaacggtg	ccatccctga	acacggctgg	60
ccactgggta	tactgctgac	aaccgcaaca	acaaaaacac	aaatccttgg	cactggctag	120

tctatgtcct ctcaagtgcc tttttgtttg t 151

<210> 55
 <211> 91
 <212> DNA
 <213> Homo sapien

<400> 55
 acctggcttg tctccgggtg gttcccggtg cccccacgg tccccagaac ggacactttc 60
 gccctccagt ggatactga gccaaagtgg t 91

<210> 56
 <211> 133
 <212> DNA
 <213> Homo sapien

<400> 56
 ggcggatgtg cgttggttat atacaaatat gtcattttat gtaagggact tgagtatact 60
 tggatttttg gtatctgtgg gttgggggga cggtcaggga accaataccc catggatacc 120
 aagggacaac tgt 133

<210> 57
 <211> 147
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(147)
 <223> n = A,T,C or G

<400> 57
 actctggaga acctgagccg ctgctccgcc tctgggatga ggtgatgcan gcngtggcgc 60
 gactggggagc tgagcccttc cctttgcgcc tgcctcagag gattgttgcc gacntgcana 120
 tctcantggg ctggatncat gcagggt 147

<210> 58
 <211> 198
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(198)
 <223> n = A,T,C or G

<400> 58
 acagggatat aggtttnaag ttattgtnat tgtaaaatac attgaatttt ctgtatactc 60
 tgattacata cttttatcct ttaaaaaaga tgtaaatctt aatttttatg ccatctatta 120
 attaccaat gagttacctt gtaaatgaga agtcatgata gactgaatt ttaactagtt 180
 ttgacttcta agtttgggt 198

<210> 59
 <211> 330
 <212> DNA
 <213> Homo sapien

<400> 59

acaacaaatg ggttgtgagg aagtcttatac agcaaaactg gtgatggcta ctgaaaagat	60
ccattgaaaa ttatcattaa tgatttttaa tgacaagtta tcaaaaactc actcaatttt	120
cacctgtgct agcttgctaa aatgggagtt aactctagag caaatatagt atcttctgaa	180
tacagtcaat aaatgacaaa gccagggcct acaggtgggt tccagacttt ccagaccag	240
cagaaggaat ctattttatc acatggatct ccgtctgtgc tcaaaatacc taatgatatt	300
tttctgtcttt attggacttc tttgaagagt	330

<210> 60
 <211> 175
 <212> DNA
 <213> Homo sapien

<400> 60	
accgtgggtg ctttctacat tcctgacggc tccttcacca acatctgggt ctacttcggc	60
gtcgtgggtc ctttctctt catcctcatc cagctgggtc tgctcatcga ctttgcgac	120
tcctggaacc agcgggtggc gggcaaggcc gaggagtgcg attcccgtgc ctggt	175

<210> 61
 <211> 154
 <212> DNA
 <213> Homo sapien

<400> 61	
accccacttt tcctcctgtg agcagtctgg acttctcact gctacatgat gagggtgagt	60
ggttgttgct cttcaacagt atcctccctt ttccggatct gctgagccgg acagcagtgc	120
tggactgcac agccccgggg ctccacattg ctgt	154

<210> 62
 <211> 30
 <212> DNA
 <213> Homo sapien

<400> 62	
cgctcgagcc ctatagtgag tcgtattaga	30

<210> 63
 <211> 89
 <212> DNA
 <213> Homo sapien

<400> 63	
acaagtcatt tcagcaccct ttgctcttca aaactgacca tcttttatat ttaatgcttc	60
ctgtatgaat aaaaatgggt atgtcaagt	89

<210> 64
 <211> 97
 <212> DNA
 <213> Homo sapien

<400> 64	
accggagtaa ctgagtcggg acgctgaatc tgaatccacc aataaataaa ggttctgcag	60
aatcagtga tccaggattg gtccttggat ctgggggt	97

<210> 65
 <211> 377
 <212> DNA
 <213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(377)

<223> n = A,T,C or G

<400> 65

acaacaanaa ntcccttctt taggccactg atggaaacct ggaacccctt tttgatggca	60
gcatggcgtc ctaggccttg acacagcggc tggggtttgg gctntcccaa accgcacacc	120
ccaaccctgg tctaccacaca nttctggcta tgggctgtct ctgccactga acatcagggg	180
tcggtcataa natgaaatcc caanggggac agaggtcagt agaggaagct caatgagaaa	240
ggtgctgttt gtcagccag aaaacagctg cctggcattc gccgctgaac tatgaacccg	300
tgggggtgaa ctaccccccag gaggaatcat gcctgggcga tgcaanggtg ccaacaggag	360
gggcgggagg agcatgt	377

<210> 66

<211> 305

<212> DNA

<213> Homo sapien

<400> 66

acgcctttcc ctcagaatcc aggggaagaga ctgtcgctg ccttcctccg ttgttgcggtg	60
agaacccgtg tgccccctcc caccatatcc accctcgctc catctttgaa ctcaaacacg	120
aggaactaac tgcaccctgg tectctcccc agtccccagt tcacctcca tccctcacct	180
tectccactc taagggatat caacactgcc cagcacaggg gccctgaatt tatgtggttt	240
ttatatattt tttaataaga tgcactttat gtcatttttt aataaagtct gaagaattac	300
tgttt	305

<210> 67

<211> 385

<212> DNA

<213> Homo sapien

<400> 67

actacacaca ctccacttgc ccttgtgaga cactttgtcc cagcacttta ggaatgctga	60
ggtcggacca gccacatctc atgtgcaaga ttgccagca gacatcaggt ctgagagttc	120
cccttttaaa aaaggggact tgcttaaaaa agaagtctag ccacgattgt gtagagcagc	180
tgtgctgtgc tggagattca cttttgagag agttctctc tgagacctga tcttttagagg	240
ctgggcagtc ttgcacatga gatgggctg gtctgatctc agcactcctt agtctgcttg	300
cctctcccag ggccccagcc tggccacacc tgcttacagg gcactctcag atgcccatac	360
catagtttct gtgctagtgg accgt	385

<210> 68

<211> 73

<212> DNA

<213> Homo sapien

<400> 68

acttaaccag atatattttt accccagatg gggatattct ttgtaaaaaa tgaaaataaa	60
gttttttttaa tgg	73

<210> 69

<211> 536

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(536)

<223> n = A,T,C or G

<400> 69

actagtcacag	tgtggtggaa	ttccattgtg	ttgggggctc	tcaccctcct	ctcctgcagc	60
tccagctttg	tgtctgcct	ctgaggagac	catggcccag	catctgagta	ccctgctgct	120
cctgctggcc	accctagctg	tggccctggc	ctggagcccc	aaggaggagg	ataggataat	180
cccggtggc	atctataacg	cagacctcaa	tgatgagtgg	gtacagcgtg	cccttcactt	240
cgccatcagc	gagtataaca	aggccaccaa	agatgactac	tacagacgtc	cgctgcgggg	300
actaagagcc	aggcaacaga	ccgttggggg	ggtgaattac	ttcttcgacg	tagaggtggg	360
ccgaaccata	tgtaccaagt	cccagcccaa	cttggacacc	tgtgccttcc	atgaacagcc	420
agaactgcag	aagaaacagt	tgtgctcttt	cgagatctac	gaagttccct	ggggagaaca	480
gaangtcctt	gggtgaaatc	caggtgtcaa	gaaatcctan	ggatctgttg	ccaggg	536

<210> 70

<211> 477

<212> DNA

<213> Homo sapien

<400> 70

atgacccta	acagggggccc	tctcagccct	cctaattgacc	tccggcctag	ccatgtgatt	60
tcacttccac	tccataacgc	tcctcact	aggcctacta	accaacacac	taaccatata	120
ccaatgatgg	cgcatgtaa	cacgagaaag	cacataccaa	ggccaccaca	caccacctgt	180
ccaaaaaggc	cttcgatacg	ggataatcct	atttattacc	tcagaagttt	ttttcttcgc	240
agggattttt	ctgagccttt	taccactcca	gcctagcccc	taccccccaa	ctaggagggc	300
actggccccc	aacaggcatc	accccgctaa	atcccctaga	agtcccactc	ctaaacacat	360
ccgtattact	cgcatcagga	gtatcaatca	cctgagctca	ccatagtcta	atagaaaaca	420
accgaaacca	aattattcaa	agcactgctt	attacaattt	tactgggtct	ctatttt	477

<210> 71

<211> 533

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(533)

<223> n = A,T,C or G

<400> 71

agagctatag	gtacagtgtg	atctcagctt	tgcaaacaca	ttttctacat	agatagtact	60
aggtattaat	agatatgtaa	agaaagaaat	cacaccatta	ataatggtaa	gattggttta	120
tgtgatttta	gtgggttttt	tggcaccctt	atatatgttt	tccaaacttt	cagcagtgat	180
attattttcca	taacttaaaa	agtgagtgtg	aaaaagaaaa	tctccagcaa	gcattctcatt	240
taaataaagg	tttgtcatct	ttaaaaatac	agcaatatgt	gactttttta	aaaagctgtc	300
aaataggtgt	gaccctacta	ataattatta	gaaatacatt	taaaaacatc	gagtacctca	360
agtcagtttg	ccttgaaaaa	tatcaaatat	aactcttaga	gaaatgtaca	taaaagaatg	420
cttcgtaatt	ttggagtang	aggttccctc	ctcaattttg	tatttttaaa	aagtacatgg	480
taaaaaaaaa	aattcacac	agtatataag	gctgtaaaaa	gaagaattct	gcc	533

<210> 72

<211> 511

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(511)

<223> n = A,T,C or G

<400> 72

tattacggaa	aaacacacca	cataattcaa	ctancaaaaga	anactgcttc	agggcgtgta	60
aaatgaaagg	cttccaggca	gttatctgat	taaagaacac	taaaagaggg	acaaggctaa	120
aagccgcagg	atgtctacac	tatancaggc	gctatttggg	ttggctggag	gagctgtgga	180
aaacatggan	agattgggtgc	tgganacgc	cgtggctatt	cctcattgtt	attacanagt	240
gaggttctct	gtgtgcccac	tggtttgaaa	accgttctnc	aataatgata	gaatagtaca	300
cacatgagaa	ctgaaatggc	ccaaacccag	aaagaaagcc	caactagatc	ctcagaanac	360
gcttctaggg	acaataaccg	atgaagaaaa	gatggcctcc	ttgtgcccc	gtctgttatg	420
atttctctcc	attgcagcna	naaacccgtt	cttctaagca	aacncagggtg	atgatggcna	480
aaatacaccc	cctcttgaag	naccnggagg	a			511

<210> 73

<211> 499

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (499)

<223> n = A,T,C or G

<400> 73

cagtgccagc	actggtgcc	gtaccagtag	caataacagt	gccagtgcc	gtgccagcac	60
cagtggtagc	ttcagtgtg	gtgccagcct	gaccgccact	ctcacatttg	ggctcttcgc	120
tggccttggt	ggagctggg	ccagcaccag	tggcagctct	ggtgcctgtg	gtttctctta	180
caagttagat	tttagatatt	gttaatcctg	ccagtctttc	tcttcaagcc	aggggtgcac	240
ctcagaaacc	tactcaacac	agcactctag	gcagccacta	tcaatcaatt	gaagttgaca	300
ctctgcatta	aatctatttg	ccatttctga	aaaaaaaaaa	aaaaaaaggg	cggccgctcg	360
antctagagg	gcccgtttta	acccgctgat	cagcctcgac	tgtgccttct	anttgccagc	420
catctgttgt	ttgcccctcc	cccngtgcct	tccttgaccc	tggaaagtgc	cactcccact	480
gtcctttcct	aantaaaaat					499

<210> 74

<211> 537

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (537)

<223> n = A,T,C or G

<400> 74

tttcatagga	gaacacactg	aggagatact	tgaagaattt	ggattcagcc	gcgaagagat	60
ttatcagctt	aactcagata	aaatcattga	aagtaataag	gtaaaagcta	gtctctaact	120
tccaggccca	cggctcaagt	gaatttgaat	actgcattta	cagtgtagag	taacacataa	180
cattgtatgc	atggaaacat	ggaggaacag	tattacagtg	tcctaccact	ctaatacaaga	240
aaagaattac	agactctgat	tctacagtga	tgattgaatt	ctaaaaatgg	taatcattag	300
ggcttttgat	ttataanact	ttgggtactt	atactaaatt	atggtagtta	tactgccttc	360
cagtttgctt	gatataattg	ttgatattaa	gattcttgac	ttatatattg	aatgggttct	420
actgaaaaan	gaatgatata	ttcttgaaga	catcgatata	catttatatta	cactcttgat	480
tctacaatgt	agaaaatgaa	ggaaatgccc	caaattgtat	ggtgataaaa	gtcccgt	537

<210> 75

<211> 467

<212> DNA

<213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(467)
 <223> n = A,T,C or G

<400> 75
 caaanacaat tggtcaaaaag atgcaaatga tacactactg ctgcagctca caaacacctc 60
 tgcatattac acgtacctcc tcctgctcct caagtagtgt ggtctatatt gccatcatca 120
 cctgctgtct gcttagaaga acggctttct gctgcaangg agagaaatca taacagacgg 180
 tggcacaagg aggccatctt ttctcatcgc gttattgtcc ctagaagcgt cttctgagga 240
 tctagttggg ctttctttct gggtttgggc catttcantt ctcatgtgtg tactattcta 300
 tcattattgt ataacggttt tcaaaccngt gggcacncag agaacctcac tctgtaataa 360
 caatgaggaa tagccacggg gatctccagc accaaatctc tccatgttnt tccagagctc 420
 ctccagccaa cccaaatagc cgctgctatn gtgtagaaca tccctgn 467

<210> 76
 <211> 400
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(400)
 <223> n = A,T,C or G

<400> 76
 aagctgacag cattcgggcc gagatgtctc gctccgtggc cttagctgtg ctgcgctac 60
 tctctctttc tggcctggag gctatccagc gtactccaaa gattcagggt tactcacgtc 120
 atccagcaga gaatggaaa tcaaatttcc tgaattgcta tgtgtctggg ttcatccat 180
 ccgacattga agttgactta ctgaagaatg gagagagaat tgaaaaagt gagcattcag 240
 acttgtcttt cagcaaggac tgggtctttct atctcttgta ctacactgaa ttcaccccca 300
 ctgaaaaaga tgagtatgcc tgccgtgtga accatgtgac ttgtcacag cccaagatng 360
 ttnagtggga teganacatg taagcagcan catgggaggt 400

<210> 77
 <211> 248
 <212> DNA
 <213> Homo sapien

<400> 77
 ctggagtgcc ttggtgtttc aagcccctgc aggaagcaga atgcaccttc tgaggcacct 60
 ccagctgccc cggcggggga tgcgaggctc ggagcaccct tgcccggctg tgattgctgc 120
 caggcactgt tcatctcagc ttttctgtcc ctttgcctcc ggcaagcgt tctgctgaaa 180
 gttcatactt ggagcctgat gtcttaacga ataaaggctc catgctccac ccgaaaaaaa 240
 aaaaaaaa 248

<210> 78
 <211> 201
 <212> DNA
 <213> Homo sapien

<400> 78
 actagtccag tgtggtggaa ttccattgtg ttgggcccac cacaatggct acctttaaca 60
 tcaccagac cccgcctgc ccgtgcccc cgtgctgct aacgacagta tgatgcttac 120
 tctgtactc ggaaactatt tttatgtaat taatgtatgc tttcttgtt ataatgcct 180
 gatttaaaaa aaaaaaaaaa a 201

<210> 79
 <211> 552
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(552)
 <223> n = A,T,C or G

<400> 79
 tccttttgtt aggtttttga gacaacccta gacctaaact gtgtcacaga cttctgaatg 60
 tttaggcagt gctagtaatt tcctcgtaat gattctgtta ttactttcct attctttatt 120
 cctctttctt ctgaagatta atgaagttga aaattgaggt ggataaatac aaaaaggtag 180
 tgtgatagta taagtatcta agtgcagatg aaagtgtgtt atatatatcc attcaaaatt 240
 atgcaagtta gtaattactc agggtttaact aaattacttt aatatgctgt tgaacctact 300
 ctgttccttg gctagaaaaa attataaaca ggactttgtt agtttgggaa gccaaattga 360
 taatattcta tgttctaaaa gttgggctat acataaanta tnaagaaata tggaatttta 420
 tccccaggaa tatgggggtc atttatgaat antaccggg anagaagttt tgantnaaac 480
 cngttttggt taatacgta atagtctctn aatnaacaag gcntgactta tttccaaaaa 540
 aaaaaaaaaa aa 552

<210> 80
 <211> 476
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(476)
 <223> n = A,T,C or G

<400> 80
 acagggattt gagatgctaa ggccccagag atcgtttgat ccaaccctct tattttcaga 60
 ggggaaaatg gggcctagaa gttacagagc atctagctgg tgcgctggca cccctggcct 120
 cacacagact cccgagtagc tgggactaca ggcacacagt cactgaagca ggccctgttt 180
 gcaattcacg ttgccacctc caacttaaac attcttcata tgtgatgtcc ttagtcacta 240
 aggttaaat ttcccaccca gaaaaggcaa cttagataaa atcttagagt actttcatac 300
 tcttctaagt cctcttccag cctcactttg agtcctcctt ggggggtgat aggaantntc 360
 tcttggttt ctcaataaaa tctctatcca tctcatgttt aatttggtac gcntaaaaat 420
 gctgaaaaaa ttaaaatggt ctggtttcnc tttaaaaaaa aaaaaaaaaa aaaaaa 476

<210> 81
 <211> 232
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(232)
 <223> n = A,T,C or G

<400> 81
 ttttttttg tatgcntcn ctgtgngtt attgttgctg ccaccctgga ggagcccagt 60
 ttctttctga tctttctttt ctgggggatc ttcttgctc tgccctcca tcccagcct 120
 ctcatccca tcttgactt ttgctagggt tggaggcgt ttcttggtag cccctcagag 180
 actcagtcag cggaataag tcttaggggt ggggggtgtg gcaagccggc ct 232

<210> 82
 <211> 383
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (383)
 <223> n = A,T,C or G

<400> 82
 aggcgggagc agaagctaaa gccaaagccc aagaagagtgc gcagtgccag cactgggtgcc 60
 agtaccagta ccaataacat gccagtgccca gtgccagcac cagtgggtggc ttcagtgtctg 120
 gtgccagcct gaccgccact ctcacatttg ggctcttcgc tggccttggt ggagctgggtg 180
 ccagcaccag tggcagctct ggtgcctgtg gttctctcta caagtgagat ttagatatt 240
 gttaatcctg ccagtctttc tcttcaagcc aggggtgcac ctcagaaacc tactcaacac 300
 agcactctng gcagccacta tcaatcaatt gaagttgaca ctctgcatta aatctatttg 360
 ccatttcaaa aaaaaaaaaa aaa 383

<210> 83
 <211> 494
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (494)
 <223> n = A,T,C or G

<400> 83
 accgaattgg gaccgctggc ttataagcga tcatgtcttc cagtattacc tcaacgagca 60
 gggagatcga gtctatacgc tgaagaaatt tgaccgatg ggacaacaga cctgctcagc 120
 ccactctgct cggttctccc cagatgacaa atactctcga caccgaatca ccatcaagaa 180
 acgcttcaag gtgctcatga cccagcaacc gcgcctgtc ctctgagggt ccttaaactg 240
 atgtcttttc tgccacctgt taccctctcg agactccgta accaaactct tcggactgtg 300
 agccctgatg cctttttgcc agccatactc tttggcntcc agtctctcgt ggcgattgat 360
 tatgcttggtg tgaggcaatc atggtggcat caccatnaa gggaacacat ttganttttt 420
 tttcncatat tttaaattac naccagaata nttcagaata aatgaattga aaaactctta 480
 aaaaaaaaaa aaaa 494

<210> 84
 <211> 380
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (380)
 <223> n = A,T,C or G

<400> 84
 gctggtagcc tatggcgtgg ccacggangg gctcctgagg cacgggacag tgacttccca 60
 agtatcctgc gccgcgtctt ctaccgtccc tacctgcaga tcttcgggca gattccccag 120
 gaggacatgg acgtggccct catggagcac agcaactgct cgtcggagcc cggcttcttg 180
 gcacaccctc ctggggccca ggccgggccc tgcgtctccc agtatgcaa ctggctgggtg 240
 gtgctgtctc tegtcatctt cctgctcgtg gccaacatcc tgctggtcac ttgctcattg 300
 ccatgttcag ttacacattc ggcaaagtac agggcaacag cnatctctac tgggaaggcc 360
 agcgttncgg cctcatccgg 380

<210> 85
 <211> 481
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(481)
 <223> n = A,T,C or G

<400> 85
 gagttagctc ctccacaacc ttgatgaggt cgtctgcagt ggcctctcgc ttcataccgc 60
 tnccatcgctc atactgtagg ttgcccacca cctcctgcat cttggggcgg ctaatatcca 120
 ggaaactctc aatcaagtca ccgtonatna aacctgtggc tggttctgtc ttcgctcgg 180
 tgtgaaagga tctccagaag gagtgctoga tcttccccac acttttgatg actttattga 240
 gtcgattctg catgtccagc aggaggttgt accagctctc tgacagttag gtcaccagcc 300
 ctatcatgcc nttgaacgtg ccgaagaaca ccgagccttg tgtggggggg gnagtctcac 360
 ccagattctg cattaccaga nagccgtggc aaaaganatt gacaactcgc ccaggngaa 420
 aaagaacacc tcctggaagt gctngccgct cctcgtecnt tgggtggnngc gcntnecctt 480
 t 481

<210> 86
 <211> 472
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(472)
 <223> n = A,T,C or G

<400> 86
 aacatcttcc tgtataatgc tgtgtaatat cgatccgatn ttgtctgctg agaattcatt 60
 acttggaana gcaacttnaa gcctggacac tggattataa attcacaata tgcaaacatt 120
 taaacagtgt gtcaatctgc tcccttactt tgcatcacc agtctgggaa taagggtatg 180
 ccctattcac acctgttaaa agggcgctaa gcatttttga ttcaacatct ttttttttga 240
 cacaagtccg aaaaaagcaa aagtaaacag ttnttaattt gttagccaat tcactttctt 300
 catgggacag agccatttga tttaaaaagc aaattgcata atattgagct ttgggagctg 360
 atatntgagc ggaagantag cctttctact tcaccagaca caactccttt catattggga 420
 tgtnnacnaa agttatgtct cttacagatg ggatgctttt gtggcaattc tg 472

<210> 87
 <211> 413
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(413)
 <223> n = A,T,C or G

<400> 87
 agaaaccagt atctctnaaa acaacctctc ataccttggt gacctaatth tgtgtgcgtg 60
 tgtgtgtgctg cgcataattat atagacagggc acatcttttt tactttttgta aaagcttatg 120
 cctcttttgg atctatatct gtgaaagttt taatgatctg ccataatgtc ttggggaccc 180
 ttgtcttctg tgtaaattggt actagagaaa acacctatnt tatgagtcaa tctagttngt 240
 tttattcgac atgaaggaaa tttccagatn acaacactna caaactctcc cttgactagg 300

ggggacaaaag aaaagcanaa ctgaacatna gaaacaattn cctgggtgaga aattncataa 360
acagaaattg ggtngtatat tgaaananng catcattnaa acgttttttt ttt 413

<210> 88
<211> 448
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(448)
<223> n = A,T,C or G

<400> 88
cgagcggggt cctctctatc tagctccagc ctctcgccgtg cccactccc cgcgctccgc 60
gtcctagccn accatggccg ggcccctgcg cgcccgcgtg ctctgctggg ccacccctggc 120
cgtggccctg gccgtgagcc ccgcggcccg ctccagtcgc ggcaagccgc cgcgccctggg 180
gggaggccca tggaccccg gtggaagaag aaggtgtgcg gcgtgcactg gactttgccg 240
tcggcnanta caacaaacc gcaacnactt ttaccnagcn cgcgctgcag gttgtgccg 300
cccaancaaa ttgttactng gggtaantaa ttcttggaag ttgaacctgg gccaaacnng 360
tttaccagaa ccnagccaat tngaacaatt nccccccat aacagccct tttaaaagg 420
gaancantcc tgntcttttc caaat 448

<210> 89
<211> 463
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(463)
<223> n = A,T,C or G

<400> 89
gaat 60
gtagt 120
agagg 180
ctcagt 240
tttnat 300
tttaac 360
aattct 420
aattcn 463

<210> 90
<211> 400
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(400)
<223> n = A,T,C or G

<400> 90
agg 60
cttcc 120
tcttc 180
tcctt 240

cgttctctaa caatgtcctc tccttgaagt atttggtga acaaccacc tnaagtcct	300
ttgtgcatcc attttaata tacttaatag ggcattggtg cactagggtta aattctgcaa	360
gagtcactctg tctgcaaaag ttgcgttagt atatctgcca	400

<210> 91
 <211> 480
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (480)
 <223> n = A,T,C or G

<400> 91	
gagctcggat ccaataatct ttgtctgagg gcagcacaca tatncagtgc catggnaact	60
ggtctacccc acatgggagc agcatgccgt agntatataa ggtcattccc tgagtcagac	120
atgcctcttt gactaccgtg tgccagtgtt ggtgattctc acacacctcc nnccgctctt	180
tgtggaaaaa ctggcacttg nctggaacta gcaagacatc acttacaaat tcacccacga	240
gacacttgaa aggtgtaaca aagcgactct tgcattgctt tttgtccctc cggcaccagt	300
tgtcaatact aaccgcgtgg tttgcctcca tcacatttgt gatctgtagc tctggataca	360
tctcctgaca gtactgaaga acttcttctt ttgtttcaaa agcaactctt ggtgcctgtt	420
ngatcagggt cccatttccc agtcgcaatg ttcacatggc atatnttact tcccacaaaa	480

<210> 92
 <211> 477
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (477)
 <223> n = A,T,C or G

<400> 92	
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cccacgcagg cagcagcggg gccggtcaat gaactccact cgtggcttgg ggttgacggt	180
taantgcagg aagagggtga ccacctcgcg gtccaccagg atgcccagc gtgcgggacc	240
tgcagcgaaa ctctctgatg gtcattgagc ggaagcgaat gangcccagg gccttgccca	300
gaaccttccg cctgttctct ggcgtcacct gcagctgctg ccgctnacac tcggcctcgg	360
accagcggac aaacggcggt gaacagccgc acctcacgga tgcccantgt gtcgcgctcc	420
aggaacggcn ccagcgtgtc cagggtcaatg tcggtgaanc ctccgcgggt aatggcg	477

<210> 93
 <211> 377
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (377)
 <223> n = A,T,C or G

<400> 93	
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cgctcaatg cagaaccant agtgggagca ctgtgtttag agttaagagt gaacactgtg	180

tgattttact	tggaatttc	ctctgttata	tagcttttcc	caatgcta	ttccaaacaa	240
caacaacaaa	ataacatgtt	tgccgtttna	gttgtataaa	agtangtgat	tctgtatnta	300
aagaaaatat	tactgtttaca	tatactgctt	gcaanttctg	tattttattgg	tnctctggaa	360
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<210> 94

<211> 495

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (495)

<223> n = A,T,C or G

<400> 94

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ccaaggaaag	accaccttct	ggggacatgg	gctggagggc	aggacctaga	ggcaccaagg	180
gaaggcccca	ttccggggct	gttccccgag	gaggaagggg	aggggctctg	tgtgcccccc	240
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acacccaccc	agancancca	cccgccatgg	ggaatgtnct	caaggaatcg	cngggcaacg	420
tggactctng	ttccnnaagg	gggcagaatc	tccaatagan	gganngaacc	cttgctnana	480
aaaaaaaaana	aaaaa					495

<210> 95

<211> 472

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (472)

<223> n = A,T,C or G

<400> 95

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tagctgtttt	gagttgattc	gcaccactgc	accacaactc	aatatgaaaa	ctatttnact	180
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atcggaacaa	tgtggagtgt	atgttctttt	cacagtaata	tatgcctttt	gtaacttcac	360
ttggttattt	tattgtaaat	gaattacaaa	attcttaatt	taagaaaatg	gtangttata	420
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<210> 96

<211> 476

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (476)

<223> n = A,T,C or G

<400> 96

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gcaggtactc	ctccagaaaa	acngacaggg	caggcttgca	tgaaaaagtn	acatctgcgt	420
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<210> 97

<211> 479

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(479)

<223> n = A,T,C or G

<400> 97

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gtgattatna	aattaatcac	aaatttcact	tatacctgct	atcagcagct	agaaaaacat	360
ntnnttttta	natcaaagta	ttttgtgttt	ggaantgtnn	aatgaaatc	tgaatgtggg	420
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<210> 98

<211> 461

<212> DNA

<213> Homo sapien

<400> 98

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<210> 99

<211> 171

<212> DNA

<213> Homo sapien

<400> 99

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<210> 100

<211> 269

<212> DNA

<213> Homo sapien

<400> 100

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aaggctgagc	tgacgcgcga	gaggtcgtgt	cacgtcccac	gaccttgacg	ccgtcgggga	180
cagccggaac	agagcccggt	gaagcgggag	gcctcgggga	gccccctcggg	aagggcggcc	240
cgagagatac	gcaggtgcag	gtggccgcc				269

<210> 101

<211> 405

<212> DNA

<213> Homo sapien

<400> 101

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<210> 102

<211> 470

<212> DNA

<213> Homo sapien

<400> 102

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<210> 103

<211> 581

<212> DNA

<213> Homo sapien

<400> 103

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gaaaatcttc	tctagctctt	ttgactgtaa	atttttgact	cttgtaaaac	atccaaattc	240
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<210> 104

<211> 578

<212> DNA

<213> Homo sapien

<400> 104

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<210> 105

<211> 538

<212> DNA

<213> Homo sapien

<400> 105

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<210> 106

<211> 473

<212> DNA

<213> Homo sapien

<400> 106

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<210> 107

<211> 1621

<212> DNA

<213> Homo sapien

<400> 107

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<210> 108

<211> 382

<212> PRT

<213> Homo. sapien

<400> 108

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35     40     45
Gly Lys Arg Ser Leu Val Leu Asp Leu Lys Gln Pro Arg Gly Ala Ala
50     55     60
Val Leu Arg Arg Leu Cys Lys Arg Ser Asp Val Leu Leu Glu Pro Phe
65     70     75     80
Arg Arg Gly Val Met Glu Lys Leu Gln Leu Gly Pro Glu Ile Leu Gln
85     90     95
Arg Glu Asn Pro Arg Leu Ile Tyr Ala Arg Leu Ser Gly Phe Gly Gln
100    105    110
Ser Gly Ser Phe Cys Arg Leu Ala Gly His Asp Ile Asn Tyr Leu Ala
115    120    125
Leu Ser Gly Val Leu Ser Lys Ile Gly Arg Ser Gly Glu Asn Pro Tyr
130    135    140
Ala Pro Leu Asn Leu Leu Ala Asp Phe Ala Gly Gly Gly Leu Met Cys
145    150    155    160
Ala Leu Gly Ile Ile Met Ala Leu Phe Asp Arg Thr Arg Thr Asp Lys
165    170    175
Gly Gln Val Ile Asp Ala Asn Met Val Glu Gly Thr Ala Tyr Leu Ser
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Ser Phe Leu Trp Lys Thr Gln Lys Ser Ser Leu Trp Glu Ala Pro Arg
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Gly Gln Asn Met Leu Asp Gly Gly Ala Pro Phe Tyr Thr Thr Tyr Arg
210    215    220
Thr Ala Asp Gly Glu Phe Met Ala Val Gly Ala Ile Glu Pro Gln Phe
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Tyr Glu Leu Leu Ile Lys Gly Leu Gly Leu Lys Ser Asp Glu Leu Pro
245    250    255

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Asn Gln Met Ser Met Asp Asp Trp Pro Glu Met Lys Lys Lys Phe Ala
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 Asp Val Phe Ala Lys Lys Thr Lys Ala Glu Trp Cys Gln Ile Phe Asp
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 Gly Thr Asp Ala Cys Val Thr Pro Val Leu Thr Phe Glu Glu Val Val
 290 295 300
 His His Asp His Asn Lys Glu Arg Gly Ser Phe Ile Thr Ser Glu Glu
 305 310 315 320
 Gln Asp Val Ser Pro Arg Pro Ala Pro Leu Leu Leu Asn Thr Pro Ala
 325 330 335
 Ile Pro Ser Phe Lys Arg Asp Pro Phe Ile Gly Glu His Thr Glu Glu
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<210> 109
 <211> 1524
 <212> DNA
 <213> Homo sapien

<400> 109
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<210> 110
 <211> 3410
 <212> DNA
 <213> Homo sapien

<400> 110
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<210> 111

<211> 1289

<212> DNA

<213> Homo sapien

<400> 111

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ccatgcagtg cttcagcttc attaagacca tgatgaccc cttcaatttg ctcactcttc      180
tgtgtggtgc agccctgttg gcagtgggca tctgggtgtc aatcgatggg gcaccccttc      240
tgaagatctt cgggccactg tcgtccagtg ccatgcagtt tgtcaacgtg ggctacttcc      300
tcacgcagc cggcgttggtg gtctttgtct ttggtttcc cctcctcatc ttcattgctg      360
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aggttgagc tgctgtggtc gccttggtgt acaccacaat ggctgagcac ttcctgacgt      480
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ggaacaccac catgaaaggg ctcaagtgtc gtggcttcac caactatacg gattttgagg      600
actcacccta cttcaaagag aacagtgcct ttccccatt ctggtgcaat gacaacgtca      660
ccaacacagc caatgaaacc tgcaccaagc aaaaggctca cgacaaaaaa gtagagggtt      720
gcttcaatca gcttttgtat gacatccgaa ctaatgcagt caccgtgggt ggtgtggcag      780
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gtagccagtt ctgttgccca ttccccagt ctattaaacc cttgatatgc cccctaggcc      1140
tagtggtgat cccagtgtc tactggggga tgagagaaag gcattttata gcctgggcat      1200
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<210> 112

<211> 315

<212> PRT

<213> Homo sapien

<400> 112

```

Met Val Phe Thr Val Arg Leu Leu His Ile Phe Thr Val Asn Lys Gln
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Leu Gly Pro Lys Ile Val Ile Val Ser Lys Met Met Lys Asp Val Phe
 20          25          30
Phe Phe Leu Phe Phe Leu Gly Val Trp Leu Val Ala Tyr Gly Val Ala
 35          40          45
Thr Glu Gly Leu Leu Arg Pro Arg Asp Ser Asp Phe Pro Ser Ile Leu
 50          55          60
Arg Arg Val Phe Tyr Arg Pro Tyr Leu Gln Ile Phe Gly Gln Ile Pro
 65          70          75          80
Gln Glu Asp Met Asp Val Ala Leu Met Glu His Ser Asn Cys Ser Ser
 85          90          95
Glu Pro Gly Phe Trp Ala His Pro Pro Gly Ala Gln Ala Gly Thr Cys
100          105          110
Val Ser Gln Tyr Ala Asn Trp Leu Val Val Leu Leu Leu Val Ile Phe
115          120          125
Leu Leu Val Ala Asn Ile Leu Leu Val Asn Leu Leu Ile Ala Met Phe
130          135          140
Ser Tyr Thr Phe Gly Lys Val Gln Gly Asn Ser Asp Leu Tyr Trp Lys
145          150          155          160
Ala Gln Arg Tyr Arg Leu Ile Arg Glu Phe His Ser Arg Pro Ala Leu
165          170          175
Ala Pro Pro Phe Ile Val Ile Ser His Leu Arg Leu Leu Leu Arg Gln
180          185          190
Leu Cys Arg Arg Pro Arg Ser Pro Gln Pro Ser Ser Pro Ala Leu Glu

```

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<210> 113
<211> 553
<212> PRT
<213> Homo sapien
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 Pro Arg Ala Glu Pro Gly Thr Glu Ala Arg Arg His Tyr Asp Glu Gly
 305 310 315 320
 Val Arg Met Gly Ser Leu Gly Leu Phe Leu Gln Cys Ala Ile Ser Leu
 325 330 335
 Val Phe Ser Leu Val Met Asp Arg Leu Val Gln Arg Phe Gly Thr Arg
 340 345 350
 Ala Val Tyr Leu Ala Ser Val Ala Ala Phe Pro Val Ala Ala Gly Ala
 355 360 365
 Thr Cys Leu Ser His Ser Val Ala Val Val Thr Ala Ser Ala Ala Leu
 370 375 380
 Thr Gly Phe Thr Phe Ser Ala Leu Gln Ile Leu Pro Tyr Thr Leu Ala
 385 390 395 400
 Ser Leu Tyr His Arg Glu Lys Gln Val Phe Leu Pro Lys Tyr Arg Gly
 405 410 415
 Asp Thr Gly Gly Ala Ser Ser Glu Asp Ser Leu Met Thr Ser Phe Leu
 420 425 430
 Pro Gly Pro Lys Pro Gly Ala Pro Phe Pro Asn Gly His Val Gly Ala
 435 440 445
 Gly Gly Ser Gly Leu Leu Pro Pro Pro Ala Leu Cys Gly Ala Ser
 450 455 460
 Ala Cys Asp Val Ser Val Arg Val Val Val Gly Glu Pro Thr Glu Ala
 465 470 475 480
 Arg Val Val Pro Gly Arg Gly Ile Cys Leu Asp Leu Ala Ile Leu Asp
 485 490 495
 Ser Ala Phe Leu Leu Ser Gln Val Ala Pro Ser Leu Phe Met Gly Ser
 500 505 510
 Ile Val Gln Leu Ser Gln Ser Val Thr Ala Tyr Met Val Ser Ala Ala
 515 520 525
 Gly Leu Gly Leu Val Ala Ile Tyr Phe Ala Thr Gln Val Val Phe Asp
 530 535 540
 Lys Ser Asp Leu Ala Lys Tyr Ser Ala
 545 550

<210> 114

<211> 241

<212> PRT

<213> Homo sapien

<400> 114

Met Gln Cys Phe Ser Phe Ile Lys Thr Met Met Ile Leu Phe Asn Leu
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 Leu Ile Phe Leu Cys Gly Ala Ala Leu Leu Ala Val Gly Ile Trp Val
 20 25 30
 Ser Ile Asp Gly Ala Ser Phe Leu Lys Ile Phe Gly Pro Leu Ser Ser
 35 40 45
 Ser Ala Met Gln Phe Val Asn Val Gly Tyr Phe Leu Ile Ala Ala Gly
 50 55 60
 Val Val Val Phe Ala Leu Gly Phe Leu Gly Cys Tyr Gly Ala Lys Thr
 65 70 75 80
 Glu Ser Lys Cys Ala Leu Val Thr Phe Phe Phe Ile Leu Leu Leu Ile
 85 90 95
 Phe Ile Ala Glu Val Ala Ala Ala Val Val Ala Leu Val Tyr Thr Thr
 100 105 110
 Met Ala Glu His Phe Leu Thr Leu Leu Val Val Pro Ala Ile Lys Lys
 115 120 125
 Asp Tyr Gly Ser Gln Glu Asp Phe Thr Gln Val Trp Asn Thr Thr Met

130		135		140
Lys Gly Leu Lys Cys Cys Gly Phe Thr Asn Tyr Thr Asp Phe Glu Asp				
145		150		155
Ser Pro Tyr Phe Lys Glu Asn Ser Ala Phe Pro Pro Phe Cys Cys Asn				
	165		170	175
Asp Asn Val Thr Asn Thr Ala Asn Glu Thr Cys Thr Lys Gln Lys Ala				
	180		185	190
His Asp Gln Lys Val Glu Gly Cys Phe Asn Gln Leu Leu Tyr Asp Ile				
	195		200	205
Arg Thr Asn Ala Val Thr Val Gly Gly Val Ala Ala Gly Ile Gly Gly				
	210		215	220
Leu Glu Leu Ala Ala Met Ile Val Ser Met Tyr Leu Tyr Cys Asn Leu				
225		230		235
Gln				240

<210> 115
 <211> 366
 <212> DNA
 <213> Homo sapien

<400> 115
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 catttcactg tgatgtatat tgtgttgcaa aaaaaaaaaa gtgtctttgt ttaaaattac 120
 ttggtttgag aatccatctt gctttttccc catttggaact agtcattaac ccattctctga 180
 actggtagaa aaacatctga agagctagtc tatcagcatc tgacagggtga attggatggt 240
 tctcagaacc atttcaccca gacagcctgt ttctatcctg tttaataaat tagtttgggt 300
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 ttagtc 366

<210> 116
 <211> 282
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(282)
 <223> n = A,T,C or G

<400> 116
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 gagaaatgag atnaaacaca atnttataaa gtctacttag agaagatcaa gtgacctcaa 120
 agactttact attttcatat tttaagacac atgatttatc ctattttagt aacctgggtc 180
 atacgttaaa caaaggataa tgtgaacagc agagaggatt tgttggcaga aaatctatgt 240
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<210> 117
 <211> 305
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(305)
 <223> n = A,T,C or G

<400> 117

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tatttatcct ccctcctgaa acaattgcaa aataanacaa aatatatgaa acaattgcaa      120
aataaggcaa aatatatgaa acaacagggtc tcgagatatt ggaaatcagt caatgaagga      180
tactgatccc tgatcactgt cctaattgcag gatgtgggaa acagatgagg tcacctctgt      240
gactgccccca gcttactgcc tgtagagagt ttctangctg cagttcagac agggagaaat      300
tgggt                                           305

```

```

<210> 118
<211> 71
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1) ... (71)
<223> n = A,T,C or G

```

```

<400> 118
accaaggtgt ntgaatctct gacgtgggga tctctgattc ccgcacaatc tgagtggaaa      60
aantcctggg t                                           71

```

```

<210> 119
<211> 212
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1) ... (212)
<223> n = A,T,C or G

```

```

<400> 119
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gaaaatgggg tgaaattggc caactttcta tnaacttatg ttggcaantt tgccaccaac      120
agtaagctgg cccttctaataaaaagaaaat tgaaaggttt ctcactaanc ggaattaant      180
aatggantca aganactccc aggcctcagc gt                                           212

```

```

<210> 120
<211> 90
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1) ... (90)
<223> n = A,T,C or G

```

```

<400> 120
actcgttgca natcaggggc cccccagagt caccgttgca ggagtccttc tgggtcttgcc      60
ctccgccggc gcagaacatg ctgggggtggg                                           90

```

```

<210> 121
<211> 218
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature

```


<222> (1)...(218)

<223> n = A,T,C or G

<400> 121

tgtancgtga anacgacaga nagggttgtc aaaaatggag aanccttgaa gtcattttga	60
gaataagatt tgctaaaaga tttggggcta aaacatgggtt attgggagac atttctgaag	120
atatncangt aaattangga atgaattcat ggttcttttg ggaattcctt tacgatngcc	180
agcatanact tcatgtgggg atancagcta cccttgta	218

<210> 122

<211> 171

<212> DNA

<213> Homo sapien

<400> 122

taggggtgta tgcaactgta aggacaaaaa ttgagactca actggcttaa ccaataaagg	60
catttgtag ctcatggaac aggaagtcgg atggtggggc atcttcagtg ctgcatgagt	120
caccaccccg gcgggggtcat ctgtgccaca ggtccctgtt gacagtgcgg t	171

<210> 123

<211> 76

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(76)

<223> n = A,T,C or G

<400> 123

tgtagcgtga agacnacaga atggtgtgtg ctgtgctatc caggaacaca tttattatca	60
ttatcaanta ttgtgt	76

<210> 124

<211> 131

<212> DNA

<213> Homo sapien

<400> 124

acctttcccc aaggccaatg tcctgtgtgc taactggccg gctgcaggac agctgcaatt	60
caatgtgctg ggtcatatgg aggggaggag actctaaaaat agccaatttt attctcttgg	120
ttaagatttg t	131

<210> 125

<211> 432

<212> DNA

<213> Homo sapien

<400> 125

actttatcta ctggctatga aatagatggt ggaaaattgc gttaccaact ataccactgg	60
cttgaaaaag aggtgatagc tcttcagagg acttgtgact tttgctcaga tgctgaagaa	120
ctacagtctg ctttggcag aaatgaagat gaatttggat taaatgagga tgctgaagat	180
ttgcctcacc aaacaaaagt gaaacaactg agagaaaaatt ttcaggaaaa aagacagtgg	240
ctcttgaaagt atcagtcact tttgagaatg tttcttagtt actgcatact tcatggatcc	300
catggtgggg gtcttgcatc tgtaagaatg gaattgattt tgcttttgca agaattctcag	360
caggaaacat cagaaccact attttctagc cctctgtcag agcaaaccctc agtgccctctc	420
ctcttttgctt gt	432

<210> 126
 <211> 112
 <212> DNA
 <213> Homo sapien

<400> 126
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 agtaagaatg atatttcccc ccagggatca ccaaatattt ataaaaattt gt 112

<210> 127
 <211> 54
 <212> DNA
 <213> Homo sapien

<400> 127
 accacgaaac cacaaacaag atggaagcat caatccactt gccaaagcaca gcag 54

<210> 128
 <211> 323
 <212> DNA
 <213> Homo sapien

<400> 128
 acctcattag taattgtttt gttgtttcat ttttttctaa tgttctccct ctaccagctc 60
 acctgagata acagaatgaa aatggaagga cagccagatt tctcctttgc tctctgctca 120
 ttctctctga agtctagggt acccattttg gggacccatt ataggcaata aacacagttc 180
 ccaaagcatt tggacagttt cttgttggtt tttagaatgg ttttctttt tcttagcctt 240
 ttcttgcaaa aggtcactc agtcccttgc ttgctcagtg gactgggctc cccagggcct 300
 aggtgcctt cttttccatg tcc 323

<210> 129
 <211> 192
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(192)
 <223> n = A,T,C or G

<400> 129
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 tgaaaacaca ctaacataat ttntgtgaac catgatcaga tacaacccaa atcattcatc 120
 tagcacattc atctgtgata naaagatagg tgagtttcat ttccttcacg ttggccaatg 180
 gataaacaaa gt 192

<210> 130
 <211> 362
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(362)
 <223> n = A,T,C or G

<400> 130
 ccctttttta tggaatgagt agactgtatg tttgaanatt tanccacaac ctctttgaca 60

tataatgacg	caacaaaaaag	gtgctgttta	gtcctatggt	tcagtttatg	cccctgacaa	120
gtttccattg	tgttttgccg	atcttctggc	taatcgtggt	atcctccatg	ttattagtaa	180
ttctgtattc	catttttgta	acgcctggta	gatgtaacct	gctangaggc	taactttata	240
cttattttaa	agctcttatt	ttgtggtcac	taaaatggca	atztatgtgc	agcactttat	300
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gg						362

<210> 131
 <211> 332
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1)...(332)
 <223> n = A,T,C or G

<400> 131						
ctttttgaaa	gacgtgtcc	actcctgtgg	acatcttggt	ttaatggagt	ttcccatgca	60
gtangactgg	tatggttgca	gctgtccaga	taaaaacatt	tgaagagctc	caaaatgaga	120
gttctcccag	gttcgccctg	ctgtctcaag	tctcagcagc	agcctctttt	aggaggcatc	180
ttctgaacta	gattaaggca	gcttgtaaat	ctgatgtgat	ttggtttatt	atccaactaa	240
cttccatctg	ttatcactgg	agaaagccca	gactccccan	gacnggtacg	gattgtgggc	300
atanaaggat	tgggtgaagc	tggcgttggt	gt			332

<210> 132
 <211> 322
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1)...(322)
 <223> n = A,T,C or G

<400> 132						
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agtggctaag	agaactcgat	ttcaagcaat	tctgaaagga	aaaccagcat	gacacagaat	120
ctcaaattcc	caaacagggg	ctctgtggga	aaaatgaggg	aggacctttg	tatctcgggt	180
tttagcaagt	taaaatgaan	atgacaggaa	aggcttattt	atcaacaaag	agaagagttg	240
ggatgcttct	aaaaaaaaact	ttggtagaga	aataggaat	gctnaatcct	aggggaagcct	300
gtaacaatct	acaattgggc	ca				322

<210> 133
 <211> 278
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1)...(278)
 <223> n = A,T,C or G

<400> 133						
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cttgtttttc	tttccatctg	gtccttgggt	tgacaatttg	tggaacaac	tctattgcta	120
ctatttataa	aaaatcacia	atctttccct	ttaagctatg	ttnaattcaa	actattcctg	180
ctattcctgt	tttgtcaaag	aaatttatatt	tttcaaaata	tgtntatttg	tttgatgggt	240

cccacgaaac actaataaaa accacagaga ccagcctg . 278

<210> 134

<211> 121

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(121)

<223> n = A,T,C or G

<400> 134

gtttanaaaa	cttgtttagc	tccatagagg	aaagaatggt	aaactttgta	ttttaaaaca	60
tgattctctg	aggttaaact	tggttttcaa	atgttatttt	tacttgatt	ttgcttttgg	120
t						121

<210> 135

<211> 350

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(350)

<223> n = A,T,C or G

<400> 135

acttanaacc	atgcctagca	catcagaatc	cctcaaagaa	catcagtata	atcctataacc	60
atancaagtg	gtgactgggt	aagcgtgcca	caaaggctcag	ctggcacatt	acttggtgtgc	120
aaacttgata	cttttggtct	aagtaggaac	tagtatacag	tncctaggan	tggtactcca	180
gggtgcccc	caactcctgc	agccgctcct	ctgtgccagn	ccctgnaagg	aactttcgct	240
ccacctcaat	caagccctgg	gccatgctac	ctgcaattgg	ctgaacaaac	gtttgctgag	300
ttcccaagga	tgcaaagcct	ggtgctcaac	tcctggggcg	tcaactcagt		350

<210> 136

<211> 399

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(399)

<223> n = A,T,C or G

<400> 136

tgtaccgtga	agacgacaga	agttgcatgg	cagggacagg	gcagggccga	ggccagggtt	60
gctgtgattg	tatccgaata	ntcctcgtga	gaaaagataa	tgagatgacg	tgagcagcct	120
gcagacttgt	gtctgccttc	aanaagccag	acaggaaggc	cctgcctgcc	ttggctctga	180
cctggcggcc	agccagccag	ccacaggtgg	gcttcttcct	tttggtggtga	caacnccaag	240
aaaactgcag	aggcccagg	tcaggtgtna	gtgggtangt	gaccataaaa	caccaggtgc	300
tcccaggaac	ccgggcaaag	gccatcccca	cctacagcca	gcattgcccac	tggtgtgatg	360
ggtgcagang	gatgaagcag	ccagntgttc	tgctgtgggt			399

<210> 137

<211> 165

<212> DNA

<213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(165)
 <223> n = A,T,C or G

<400> 137
 actggtgtgg tngggggtga tgctggtggt anaagttgan gtgacttcan gatggtgtgt 60
 ggaggaagtg tgtgaacgta gggatgtaga ngttttggcc gtgctaaatg agcttcggga 120
 ttggctggtc ccactggtgg tcactgtcat tgggtggggt cctgt 165

<210> 138
 <211> 338
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(338)
 <223> n = A,T,C or G

<400> 138
 actcactgga atgccacatt cacaacagaa tcagaggtct gtgaaaacat taatggctcc 60
 ttaacttctc cagtaagaat cagggacttg aaatggaaac gttaacagcc acatgcccaa 120
 tgctgggcag tctcccatgc cttccacagt gaaagggctt gagaaaaatc acatccaatg 180
 tcatgtgttt ccagccacac caaaaggtgc ttgggggtgga gggctggggg catananggt 240
 cangcctcag gaagcctcaa gttccattca gctttgccac tgtacattcc ccatntttaa 300
 aaaaactgat gccttttttt tttttttttg taaaattc 338

<210> 139
 <211> 382
 <212> DNA
 <213> Homo sapien

<400> 139
 gggaatcttg gtttttggca tctggtttgc ctatagccga ggccactttg acagaacaaa 60
 gaaagggact tcgagtaaga aggtgattta cagccagcct agtgcccgaa gtgaaggaga 120
 attcaaacag acctcgatcat tctggtgtg agcctggctg gctcaccgcc tatcatctgc 180
 atttgctta ctcaggtgct accggactct ggcccctgat gtctgtagtt tcacaggatg 240
 ccttatttgt cttctacacc ccacagggcc cctacttct tcggatgtgt ttttaataat 300
 gtcagctatg tgccccatcc tccttcacgc cctccctccc tttctacca ctgctgagtg 360
 gcctggaact tgtttaaagt gt 382

<210> 140
 <211> 200
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(200)
 <223> n = A,T,C or G

<400> 140
 accaaanctt ctttctgttg tgttngattt tactataggg gtttngcttn ttctaaanat 60
 acttttctatt taacancttt tgttaagtgt caggtgcac tttgctccat anaattattg 120
 ttttcacatt tcaacttgta tgtgtttgtc tcttanagca ttggtgaaat cacatatttt 180
 atattcagca taaaggagaa 200

<210> 141
 <211> 335
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(335)
 <223> n = A,T,C or G

<400> 141
 actttatttt caaaacactc atatgttgca aaaaacacat agaaaaataa agtttggtgg 60
 ggggtgtgac taaacttcaa gtcacagact tttatgtgac agattggagc agggtttggt 120
 atgcatgtag agaaccctaa ctaattttatt aaacaggata gaaacaggct gtctgggtga 180
 aatggttctg agaaccatcc aattcacctg tcagatgctg atanactagc tcttcagatg 240
 tttttctacc agttcagaga tnggttaatg actanttcca atggggaaaa agcaagatgg 300
 attcacaac caagtaattt taaacaaaga cactt 335

<210> 142
 <211> 459
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(459)
 <223> n = A,T,C or G

<400> 142
 accagggttaa tattgccaca tatatccttt ccaattgagg gctaaacaga cgtgtattta 60
 ggggtgttta aagacaaccc agcttaatat caagagaaat tgtgacctt catggagtat 120
 ctgatggaga aaacactgag ttttgacaaa tcttatttta ttcagatagc agtctgatca 180
 cacatgggtcc aacaacactc aaataataaa tcaaataatna tcagatgtta aagattggtc 240
 ttcaaacatc atagccaatg atgccccgct tgcctataat ctctccgaca taaaaccaca 300
 tcaacacctc agtggccacc aaaccattca gcacagcttc cttaactgtg agctgtttga 360
 agctaccagt ctgagcacta ttgactatnt ttttcangct ctgaatagct ctagggatct 420
 cagcangggg gggaggaacc agctcaacct tggcgatant 459

<210> 143
 <211> 140
 <212> DNA
 <213> Homo sapien

<400> 143
 acatttcctt ccaccaagtc aggactcctg gcttctgtgg gagttcttat cacctgaggg 60
 aaatccaaac agtctctcct agaaaggaat agtgtcacca accccaccca tctccctgag 120
 accatccgac ttcctctgtg 140

<210> 144
 <211> 164
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(164)
 <223> n = A,T,C or G

<400> 144
 acttcagtaa caacatacaa taacaacatt aagtgtatat tgccatcttt gtcattttct 60
 atctatacca ctctcccttc tgaaaacaan aatcactanc caatcactta tacaaatttg 120
 aggcaattaa tccatatttg ttttcaataa ggaaaaaaag atgt 164

<210> 145

<211> 303

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(303)

<223> n = A,T,C or G

<400> 145
 acgtagacca tccaactttg tatttgtaat ggcaaacatc cagnagcaat tcctaaacaa 60
 actggagggt atttataccc aattatccca ttcattaaca tgccctctc ctcaggctat 120
 gcaggacagc tatcataagt cggcccaggc atccagatac taccatttgt ataaacttca 180
 gtaggggagt ccatccaagt gacaggtcta atcaaaggag gaaatggaac ataagcccag 240
 tagtaaaatn ttgcttagct gaaacagcca caaaagactt accgccgtgg tgattaccat 300
 caa 303

<210> 146

<211> 327

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(327)

<223> n = A,T,C or G

<400> 146
 actgcagctc aattagaagt ggtctctgac tttcatcanc ttctccctgg gctccatgac 60
 actggcctgg agtgactcat tgctctgggt ggttgagaga gtccttttgc caacaggcct 120
 ccaagtcagg gctgggattt gtttcccttc cacattctag caacaatatg ctggccactt 180
 cctgaacagg gaggggtggga ggagccagca tggacaagc tgccactttc taaagtagcc 240
 agacttgccc ctgggcctgt cacacctact gatgacctc tgtgcctgca ggatggaatg 300
 taggggtgag ctgtgtgact ctatggt 327

<210> 147

<211> 173

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(173)

<223> n = A,T,C or G

<400> 147
 acattgtttt tttgagataa agcattgana gagctctcct taacgtgaca caatggaagg 60
 actggaacac ataccacat ctttgttctg agggataatt ttctgataaa gtcttgctgt 120
 atattcaagc acatatgtta tatattattc agttccatgt ttatagccta gtt 173

<210> 148

<211> 477
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(477)
 <223> n = A,T,C or G

<400> 148
 acaaccactt tatctcatcg aatttttaac ccaaactcac tcaactgtgcc tttctatcct 60
 atgggatata ttatttgatg ctccatttca tcacacatat atgaataata cactcatact 120
 gccctactac ctgctgcaat aatcacattc ccttcctgtc ctgacctga agccattggg 180
 gtgggtcctag tggccatcag tccangcctg caccttgagc ccttgagctc cattgtcac 240
 nccancccac ctacccgacc ccacccctctt acacagctac ctccctgtgc tctaaccaca 300
 tagattatnt ccaaattcag tcaattaagt tactattaac actctaccg acatgtccag 360
 caccactggg aagccttctc cagccaacac acacacacac acacncacac acacacatat 420
 ccaggcacag gctacctcat cttcacaate acccctttaa ttaccatgct atgggtgg 477

<210> 149
 <211> 207
 <212> DNA
 <213> Homo sapien

<400> 149
 acagttgtat tataatatca agaaataaac ttgcaatgag agcatttaag agggaagaac 60
 taacgtatatt tagagagcca aggaagggtt ctgtggggag tgggatgtaa ggtggggcct 120
 gatgataaat aagagtcagc caggtaagtg ggtgggtgtg tatgggcaca gtgaagaaca 180
 tttcaggcag agggaacagc agtgaaa 207

<210> 150
 <211> 111
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(111)
 <223> n = A,T,C or G

<400> 150
 accttgattt cattgctgct ctgatggaaa cccaactatc taatttagct aaaacatggg 60
 cacttaaatg tggtcagtgt ttggacttgt taactantgg catctttggg t 111

<210> 151
 <211> 196
 <212> DNA
 <213> Homo sapien

<400> 151
 agcgcggcag gtcatatga acattccaga tacctatcat tactcgatgc tgttgataac 60
 agcaagatgg ctttgaactc agggtcacca ccagctattg gaccttacta tgaaaaccat 120
 ggataccaac cggaaaaccc ctatcccga cagcccactg tggccccac tgtctacgag 180
 gtgcatccgg ctcaagt 196

<210> 152
 <211> 132
 <212> DNA

<213> Homo sapien

<400> 152

acagcacttt	cacatgtaag	aagggagaaa	ttcctaaatg	taggagaaaag	ataacagAAC	60
cttccccctt	tcatctagt	gtggaaacct	gatgctttat	gttgacagga	atagaaccag	120
gaggaggttt	gt					132

<210> 153

<211> 285

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(285)

<223> n = A,T,C or G

<400> 153

acaanaccca	nganaggcca	ctggccgtg	tgtcatggcc	tccaaacatg	aaagtgtcag	60
cttctgtctt	tatgtcctca	tctgacaact	ctttaccatt	tttatcctcg	ctcagcagga	120
gcacatcaat	aaagtccaaa	gtcttggact	tggccttggc	ttggaggaag	tcataaacac	180
cctggctagt	gaggggtgcg	cgccgctcct	ggatgacggc	atctgtgaag	tcgtgcacca	240
gtctgcaggc	cctgtggaag	cgccgtccac	acggagtnag	gaatt		285

<210> 154

<211> 333

<212> DNA

<213> Homo sapien

<400> 154

accacagtcc	tggtgggcca	gggcttcatg	accctttctg	tgaaaagcca	tattatcacc	60
accccaaatt	tttctttaa	tatctttaac	tgaaggggtc	agcctcttga	ctgcaaagac	120
cctaagccgg	ttacacagct	aactcccact	ggccttgatt	tgtgaaattg	ctgctgcctg	180
attggcacag	gagtcgaagg	tgttcagctc	ccctcctccg	tggaacgaga	ctctgatttg	240
agtttcacaa	attctcgggc	cacctcgtca	ttgctcctct	gaaataaaat	ccggagaatg	300
gtcaggcctg	tctcatccat	atggatcttc	cgg			333

<210> 155

<211> 308

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(308)

<223> n = A,T,C or G

<400> 155

actggaaata	ataaaaacca	catcacagt	tttgttcaaa	gatcatcagg	gcatggatgg	60
gaaagtgtt	tgggaactgt	aaagtgccta	acacatgatc	gatgattttt	gttataatat	120
ttgaatcacg	gtgcatacaa	actctcctgc	ctgctcctcc	tgggccccag	ccccagcccc	180
atcacagctc	actgctctgt	tcatccaggc	ccagcatgta	gtggctgatt	cttcttggct	240
gcttttagcc	tccanaagtt	tctctgaagc	caaccaaacc	tctangtgta	aggcatgctg	300
gccctggt						308

<210> 156

<211> 295

<212> DNA

<213> Homo sapien

<400> 156

accttgctcg	gtgcttgga	catattagga	actcaaaata	tgagatgata	acagtgccta	60
ttattgatta	ctgagagaac	tgtagacat	ttagttgaag	atcttctaca	caggaaactga	120
gaataggaga	ttatgtttgg	ccctcatatt	ctctcctatc	ctccttgcc	cattctatgt	180
ctaataatatt	ctcaatcaaa	taaggtttagc	ataatcagga	aatcgaccaa	ataccaatat	240
aaaaccagat	gtctatcctt	aagattttca	aatagaaaac	aaattaacag	actat	295

<210> 157

<211> 126

<212> DNA

<213> Homo sapien

<400> 157

acaagtttaa	atagtgtgt	cactgtgcat	gtgctgaaat	gtgaaatcca	ccacatttct	60
gaagagcaaa	acaaattctg	tcatgtaatc	tctatcttgg	gtcgtgggta	tatctgtccc	120
cttagt						126

<210> 158

<211> 442

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (442)

<223> n = A, T, C or G

<400> 158

acccactggt	cttggaaca	cccatcctta	atacgatgat	ttttctgtcg	tgtgaaaatg	60
aanccagcag	gctgccccta	gtcagtcctt	ccttccagag	aaaaagagat	ttgagaaaagt	120
gcctgggtaa	ttcaccatta	atttccctcc	ccaaactctc	tgagtcttcc	cttaatat	180
ctggtggttc	tgaccaaagc	aggtcatggt	ttgttgagca	tttgggatcc	cagtgaagta	240
natgtttgta	gccttgcata	cttagccctt	cccacgcaca	aacggagtgg	cagagtgggtg	300
ccaaccctgt	tttcccagtc	cacgtagaca	gattcacagt	gcggaattct	ggaagctgga	360
nacagacggg	ctctttgcag	agccgggact	ctgagangga	catgagggcc	tctgcctctg	420
tgttcattct	ctgatgtcct	gt				442

<210> 159

<211> 498

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (498)

<223> n = A, T, C or G

<400> 159

acttccagg	aacgttggtg	tttccgttga	gcctgaactg	atgggtgacg	ttgtagggtc	60
tccaacaaga	actgaggttg	cagagcgggt	agggaaagag	gctgttccag	ttgcacctgg	120
gctgctgtgg	actgttggtg	attcctcact	acggcccaag	gttgtggaac	tggcanaaa	180
gtgtgtgtgt	gganttgagc	tcgggcgggt	gtggtagggt	gtgggtctct	caacaggggc	240
tgctgtgggtg	ccgggagngt	aangtgttgt	gtcacttgag	cttggccagc	tctggaaagt	300
antanattct	tctgaaggc	cagcgcttgt	ggagctggca	ngggtcantg	ttgtgtgtaa	360
cgaaccagt	ctgctgtggg	tgggtgtana	tcctccacaa	agcctgaagt	tatggtgtcn	420
tcaggtaana	atgtgggttc	agtgtccctg	ggcngctgtg	gaaggttgta	nattgtcacc	480

aagggaataa gctgtggt

498

<210> 160

<211> 380

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(380)

<223> n = A,T,C or G

<400> 160

acctgcatcc	agcttccctg	ccaaactcac	aaggagacat	caacctctag	acagggaaac	60
agcttcagga	tacttccagg	agacagagcc	accagcagca	aaacaaatat	tcccatgcct	120
ggagcatggc	atagaggaag	ctganaaatg	tgggggtctga	ggaagccatt	tgagtctggc	180
cactagacat	ctcatcagcc	acttgtgtga	agagatgccc	catgacccca	gatgcctctc	240
ccacccttac	ctccatctca	cacacttgag	ctttccactc	tgtataattc	taacatcctg	300
gagaaaaatg	gcagtttgac	cgaacctgtt	cacaacggta	gaggctgatt	tctaacgaaa	360
cttgtagaat	gaagcctgga					380

<210> 161

<211> 114

<212> DNA

<213> Homo sapien

<400> 161

actccacatc	ccctctgagc	aggcggttgt	cgttcaaggt	gtatttggcc	ttgcctgtca	60
cactgtccac	tggcccctta	tccacttggt	gcttaatccc	tcgaaagagc	atgt	114

<210> 162

<211> 177

<212> DNA

<213> Homo sapien

<400> 162

actttctgaa	tcgaatcaaa	tgatacttag	tgtagtttta	atatcctcat	atatatcaaa	60
gttttactac	tctgataatt	ttgtaaacca	ggtaaccaga	acatccagtc	atacagcttt	120
tggtgatata	taacttggca	ataaccagtc	ctgggtgatac	ataaaaactac	tcactgt	177

<210> 163

<211> 137

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(137)

<223> n = A,T,C or G

<400> 163

catttataca	gacaggcgtg	aagacattca	cgacaaaaac	gcgaaattct	atcccgtgac	60
canagaaggc	agctacggct	actcctacat	cctggcgtgg	gtggccttcg	cctgcacctt	120
catcagcggc	atgatgt					137

<210> 164

<211> 469

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(469)

<223> n = A,T,C or G

<400> 164

cttatcacia	tgaatgttct	cctgggcagc	gttgatgatct	ttgccacctt	cgtgacttta	60
tgcaatgcat	catgctat	cataccta	gagggagttc	caggagattc	aaccaggaaa	120
tgcatggatc	tcaaaggaaa	caaacaccca	ataaactcgg	agtggcagac	tgacaactgt	180
gagacatgca	cttgctacga	aacagaaatt	tcatgttgca	cccttgtttc	tacacctgtg	240
ggttatgaca	aagacaactg	ccaaagaatc	ttcaagaagg	aggactgcaa	gtatatcgtg	300
gtggagaaga	aggacccaaa	aaagacctgt	tctgtcagtg	aatggataat	ctaattgtgt	360
tctagtaggc	acagggtccc	caggccaggc	ctcattctcc	tctggcctct	aatagtcaat	420
gattgtgtag	ccatgcctat	cagtaaaaaag	atntttgagc	aaacacttt		469

<210> 165

<211> 195

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(195)

<223> n = A,T,C or G

<400> 165

acagtttttt	atanatatcg	acattgccgg	cacttgtgtt	cagtttcata	aagctgggtgg	60
atccgctgtc	atccactatt	ccttggtctag	agtaaaaatt	attcttatag	cccatgtccc	120
tgcaggccgc	ccgcccgtag	ttctcgttcc	agtcgtcttg	gcacacaggg	tgccaggact	180
tcctctgaga	tgagt					195

<210> 166

<211> 383

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(383)

<223> n = A,T,C or G

<400> 166

acatcttagt	agtgtggcac	atcagggggc	catcagggtc	acagtcactc	atagcctcgc	60
cgaggctcga	gtccacacca	ccggtgtagg	tgtgctcaat	cttgggcttg	gcgcccacct	120
ttggagaagg	gatatgctgc	acacacatgt	ccacaaagcc	tgtgaactcg	ccaaagaatt	180
tttgacagacc	agcctgagca	aggggcggat	gttcagcttc	agtcctcctc	tcgtcagggtg	240
gatgccaacc	tcgtctangg	tccgtgggaa	gctgggtgtc	acntcaccta	caacctgggc	300
gangatctta	taaagaggct	ccnagataaa	ctccacgaaa	cttctctggg	agctgctagt	360
nggggccttt	ttggtgaact	ttc				383

<210> 167

<211> 247

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(247)
 <223> n = A,T,C or G

<400> 167
 acagagccag accttgGCCa taaatgaanc agagattaag actaaacccc aagtcganat 60
 tggagcagaa actggagcaa gaagtgggCC tggggctgaa gtagagacca aggccactgc 120
 tatanccata cacagagcca actctcaggc caaggcnatg gttggggcag anccagagac 180
 tcaatctgan tccaaagtgg tggctggaac actggtcatg acanaggcag tgactctgac 240
 tgangtc 247

<210> 168
 <211> 273
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(273)
 <223> n = A,T,C or G

<400> 168
 acttctaagt tttctagaag tggaaggatt gtantcatcc tgaaaatggg tttacttcaa 60
 aatccctcan ccttgttctt cactactgtc tatactgana gtgtcatgtt tccacaaagg 120
 gctgacacct gagcctgnat tttcactcat ccctgagaag ccctttccag taggggtggc 180
 aattcccaac ttccttgcca caagcttccc aggccttctc ccctggaaaa ctccagcttg 240
 agtcccagat acactcatgg gctgccttgg gca 273

<210> 169
 <211> 431
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(431)
 <223> n = A,T,C or G

<400> 169
 acagccttgg cttccccaaa' ctccacagtc tcagtgcaga aagatcatct tccagcagtc 60
 agctcagacc aggggtcaaag gatgtgacat caacagtttc tggtttcaga acagggttcta 120
 ctactgtcaa atgacccccc atacttcctc aaaggctgtg gtaagttttg cacagggtgag 180
 ggcagcagaa aggggggtant tactgatgga caccatcttc tctgtatact ccacactgac 240
 cttgccatgg gcaaaggccc ctaccacaaa aacaatagga tcaactgctgg gcaccagctc 300
 acgcacatca ctgacaaccg ggatggaaaa agaantgcca actttcatac atccaactgg 360
 aaagtgatct gatactggat tcttaattac cttcaaaagc ttctggggggc catcagctgc 420
 tcgaacactg a 431

<210> 170
 <211> 266
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(266)
 <223> n = A,T,C or G

<400> 170

acctgtgggc	tgggctgtta	tgctgtgcc	ggctgtgaa	agggagttca	gaggtggagc	60
tcaaggagct	ctgcaggcat	tttgccaanc	ctctccanag	canagggagc	aacctacact	120
ccccgctaga	aagacaccag	attggagtcc	tgggaggggg	agttgggggtg	ggcatttgat	180
gtatacttgt	cacctgaatg	aangagccag	agaggaanga	gacgaanatg	anattggcct	240
tcaaagctag	gggtctggca	ggtgga				266

<210> 171

<211> 1248

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(1248)

<223> n = A,T,C or G

<400> 171

ggcagccaaa	tcataaacgg	cgaggactgc	agcccgcact	cgcagccctg	gcaggcggca	60
ctgggtcatgg	aaaacgaatt	gttctgctcg	ggcgtcctgg	tgcattccgca	gtgggtgctg	120
tcagccgcac	actgtttcca	gaagtgagtg	cagagctcct	acaccatcgg	gctgggcctg	180
cacagtcttg	aggccgacca	agagccaggg	agccagatgg	tggaggccag	cctctccgta	240
cggcaccag	agtagaacag	acccttgctc	gctaacgacc	tcattgctcat	caagttggac	300
gaatccgtgt	ccgagtctga	caccatccgg	agcatcagca	ttgcttcgca	gtgccctacc	360
gcggggaaact	cttgccctgt	ttctggctgg	ggctgtgctg	cgaacggcag	aatgcctacc	420
gtgctgcagt	gcgtgaacgt	gtcgggtggg	tctgaggagg	tctgcagtaa	gctctatgac	480
ccgctgtacc	accccagcat	gttctgcgcc	ggcggagggc	aagaccagaa	ggactcctgc	540
aacggtgact	ctgggggggcc	cctgatctgc	aacgggtact	tgcagggcct	tgtgtctttc	600
ggaaaagccc	cgtgtggcca	agttggcgtg	ccagggtgtc	acaccaacct	ctgcaaattc	660
actgagtgga	tagagaaaac	cgtccaggcc	agttaactct	ggggactggg	aacccatgaa	720
attgaccccc	aaatacatcc	tgcggaagga	attcaggaat	atctgttccc	agccccctc	780
ccctcaggcc	caggagtcca	ggccccagc	ccctcctccc	tcaaaccaag	ggtacagatc	840
cccagccctc	cctccctcag	acccaggagt	ccagaccccc	cagccccctc	tcctcagac	900
ccaggagtcc	agccccctc	ccctcagacc	caggagtcca	gacccccag	ccctcctcc	960
ctcagaccca	ggggtccagg	cccccaaccc	ctcctccctc	agactcagag	gtccaagccc	1020
ccaaccntc	attccccaga	cccagaggtc	cagggtccag	ccctctntcc	ctcagaccca	1080
gcggtccaat	gccacctaga	ctntccctgt	acacagtgcc	cccttgtggc	acgttgaccc	1140
aaccttacca	gttggttttt	catttttngt	ccctttcccc	tagatccaga	aataaagttt	1200
aagagaagng	caaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa		1248

<210> 172

<211> 159

<212> PRT

<213> Homo sapien

<220>

<221> VARIANT

<222> (1)...(159)

<223> Xaa = Any Amino Acid

<400> 172

Met	Val	Glu	Ala	Ser	Leu	Ser	Val	Arg	His	Pro	Glu	Tyr	Asn	Arg	Pro
1				5				10					15		
Leu	Leu	Ala	Asn	Asp	Leu	Met	Leu	Ile	Lys	Leu	Asp	Glu	Ser	Val	Ser
			20					25					30		
Glu	Ser	Asp	Thr	Ile	Arg	Ser	Ile	Ser	Ile	Ala	Ser	Gln	Cys	Pro	Thr
			35				40					45			
Ala	Gly	Asn	Ser	Cys	Leu	Val	Ser	Gly	Trp	Gly	Leu	Leu	Ala	Asn	Gly

```
<210> 173
<211> 1265
<212> DNA
<213> Homo sapien
```

```
<220>
<221> misc_feature
<222> (1)...(1265)
<223> n = A,T,C or G
```

<400> 173						
ggcagcccg	actcgcagcc	ctggcaggcg	gcactgggtca	tggaaaacga	attgttctgc	60
tcgggcgcc	tggtgcatcc	gcagtgggtg	ctgtcagccg	cacactgttt	ccagaactcc	120
tacaccatcg	ggctgggcct	gcacagtctt	gaggccgacc	aagagccagg	gagccagatg	180
gtggaggcca	gcctctccgt	acggcaccca	gagtacaaca	gacccttgtc	cgctaacgac	240
ctcatgtca	tcaagtttga	cgaatccgtg	tccgagtcgt	acacctccg	gagcatcagc	300
attgcttcgc	agtgccctta	cgcggggaac	tcttgccctg	tctctggtcg	gggtctgctg	360
cgcaacgggt	agctcacggg	tgtgtgtctg	ccctcttcaa	ggaggctctc	tgcccagtcg	420
cgggggctga	cccagagctc	tgcgtcccag	gcagaatgcc	taccgtgctg	cagtgcgtga	480
acgtgtcgg	ggtgtctgag	gaggtctgca	gtaagctcta	tgacccgctg	taccaccca	540
gcatgttctg	cgccggcgga	gggcaagacc	agaaggactc	ctgcaacggg	gactctgggg	600
ggccccgat	ctgcaacggg	tacttgccag	gccttgtgtc	tttcggaaaa	gccccgtgtg	660
gccaaagtgg	cgtgccaggt	gtctacacca	acctctgcaa	attcactgag	tgatatagaga	720
aaaccgtcca	ggccagttaa	ctctggggac	tgggaacca	tgaatttgac	ccccaaatac	780
atcctgcgga	aggaattcag	gaatatctgt	tcccagcccc	tccctccctc	ggcccaggag	840
tccaggcccc	cagccctcc	tccctcaaac	caagggtaca	gatccccagc	ccctcctccc	900
tcagaccag	gagtcagac	ccccagccc	ctcctccctc	agaccagga	gtccagcccc	960
tcctccntca	gaccaggag	tccagacccc	ccagcccctc	ctcctcaga	cccaggggtt	1020
gaggccccc	acccctcctc	cttcagagtc	agagggtcaa	gcccccaacc	cctcgttccc	1080
cagaccaga	ggtnnaggtc	ccagcccctc	ttccntcaga	cccagnggtc	caatgccacc	1140
tagattttcc	ctgnacacag	tgcccccttg	tggnangttg	acccaacctt	accagttggt	1200
ttttctttt	tngtcccttt	cccttagatc	cagaaataaa	gtttaagaga	ngngcaaaaa	1260
aaaaa						1265

```
<210> 174
<211> 1459
<212> DNA
<213> Homo sapien
```

```
<220>
<221> misc_feature
<222> (1)...(1459)
<223> n = A,T,C or G
```

<400> 174

ggtcagccgc	acactgtttc	cagaagtggag	tgcagagctc	ctacaccatc	gggctggggc	60
tgcacagtct	tgaggccgac	caagagccag	ggagccagat	ggtggaggcc	agcctctccg	120
tacggcacc	agagtacaac	agacccttgc	tcgctaacga	cctcatgctc	atcaagttgg	180
acgaatccgt	gtccgagtct	gacaccatcc	ggagcatcag	cattgcttcg	cagtgcctta	240
ccgcggggaa	ctcttgccctc	gtttctggct	ggggtctgct	ggcgaacggt	gagctcacgg	300
gtgtgtgtct	gccctcttca	aggaggtcct	ctgcccagtc	gcgggggctg	accagagct	360
ctgcgtccca	ggcagaatgc	ctaccgtgct	gcagtgcgtg	aacgtgtcgg	tgggtgtctga	420
ngaggctctg	antaagctct	atgaccctgc	gtaccacccc	ancatgttct	gcgccggcgg	480
agggcaagac	cagaaggact	cctgcaacgt	gagagagggg	aaaggggagg	gcaggcgact	540
caggggaagg	tggagaagg	ggagacagag	acacacaggg	ccgcatggcg	agatgcagag	600
atggagagac	acacagggag	acagtgacaa	ctagagagag	aaactgagag	aaacagagaa	660
ataaacacag	gaataaagag	aagcaaagga	agagagaaac	agaaacagac	atggggaggc	720
agaaacacac	acacatagaa	atgcagttga	ccttccaaca	gcatggggcc	tgaggcggt	780
gacctccacc	caatagaaaa	tcctcttata	acttttgact	ccccaaaaac	ctgactagaa	840
atagcctact	gttgacgggg	agccttacca	ataacataaa	tagtgcgattt	atgcatacgt	900
tttatgcatt	catgatatac	ctttgttggg	attttttgat	atttctaagc	tacacagttc	960
gtctgtgaat	ttttttaaat	tgttgcaact	ctcctaaaa	ttttctgatg	tgtttattga	1020
aaaaatccaa	gtataagtgg	acttgtgcat	tcaaaccagg	gttgttcaag	ggtcaactgt	1080
gtaccagag	ggaaacagtg	acacagattc	atagaggtga	aacacgaaga	gaaacaggaa	1140
aaatcaagac	tctacaaaga	ggctgggcag	ggtggctcat	gcctgtaatc	ccagcacttt	1200
gggaggcgag	gcaggcagat	cacttgaggt	aaggagttca	agaccagcct	ggccaaaatg	1260
gtgaaatcct	gtctgtacta	aaaatacaaa	agtttagctg	atatggtggc	aggcgctgt	1320
aatcccagct	acttgggagg	ctgaggcgag	agaattgctt	gaatatggga	ggcagaggtt	1380
gaagtgaagt	gagatcacac	cactatactc	cagctggggc	aacagagtaa	gactctgtct	1440
caaaaaaaaa	aaaaaaaaa					1459

<210> 175

<211> 1167

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (1167)

<223> n = A,T,C or G

<400> 175

gcgcagccct	ggcaggcggc	actggctcatg	gaaaacgaat	tgttctgctc	gggcgtcctg	60
gtgcatecgc	agtggtgtgt	gtcagccgca	cactgtttcc	agaactccta	caccatcggg	120
ctgggcctgc	acagtcttga	ggccgaccaa	gagccaggga	gccagatggg	ggaggccagc	180
ctctccgtac	ggcaccagga	gtacaacaga	ctcttgctcg	ctaaccacct	catgctcatc	240
aagttggacg	aatccgtgtc	cgagtctgac	accatccgga	gcatacagcat	tgcttcgcag	300
tgccctaccg	cggggaactc	ttgcctcgtn	tctggctggg	gtctgctggc	gaacggcaga	360
atgcctaccg	tgctgcactg	cgtgaacgtg	tcggtgggtg	ctgaggangt	ctgcagtaag	420
ctctatgacc	cgctgtacca	ccccagcatg	ttctgcgccg	gcggagggca	agaccagaag	480
gactcctgca	acggtgactc	tggggggccc	ctgatctgca	acgggtactt	gcagggcctt	540
gtgtctttcg	gaaaagcccc	gtgtggccaa	cttggcgtgc	caggtgtcta	caccaacctc	600
tgcaaattca	ctgagtggat	agagaaaacc	gtccagncca	gttaactctg	gggagctggg	660
acccatgaaa	ttgaccccc	aatacatcct	gcgggaangaa	ttcaggaata	tctgttccca	720
gcccctcctc	cctcaggccc	aggagtccag	gccccagcc	cctcctccct	caaaccaagg	780
gtacagatcc	ccagccctc	ctccctcaga	cccaggagtc	cagacccccc	agccctctnt	840
ccntcagacc	caggagtcca	gcccctcctc	cntcagacgc	aggagtccag	accccccagc	900
ccntctccg	tcagacccag	gggtgcaggc	ccccaaaccc	tcntccntca	gagtcagagg	960
tccaagcccc	caacccctcg	ttccccagac	ccagaggtnc	aggtcccgag	ccctcctccc	1020
tcagaccag	cggtccaatg	ccacctagan	tntccctgta	cacagtgcgc	ccttgtggca	1080
ngttgaccca	accttaccag	ttggtttttc	attttttgtc	cctttccctt	agatccagaa	1140
ataaagtnta	agagaagcgc	aaaaaaa				1167

<210> 176
 <211> 205
 <212> PRT
 <213> Homo sapien

<220>
 <221> VARIANT
 <222> (1) ... (205)
 <223> Xaa = Any Amino Acid

<400> 176
 Met Glu Asn Glu Leu Phe Cys Ser Gly Val Leu Val His Pro Gln Trp
 1 5 10 15
 Val Leu Ser Ala Ala His Cys Phe Gln Asn Ser Tyr Thr Ile Gly Leu
 20 25 30
 Gly Leu His Ser Leu Glu Ala Asp Gln Glu Pro Gly Ser Gln Met Val
 35 40 45
 Glu Ala Ser Leu Ser Val Arg His Pro Glu Tyr Asn Arg Leu Leu Leu
 50 55 60
 Ala Asn Asp Leu Met Leu Ile Lys Leu Asp Glu Ser Val Ser Glu Ser
 65 70 75 80
 Asp Thr Ile Arg Ser Ile Ser Ile Ala Ser Gln Cys Pro Thr Ala Gly
 85 90 95
 Asn Ser Cys Leu Val Ser Gly Trp Gly Leu Leu Ala Asn Gly Arg Met
 100 105 110
 Pro Thr Val Leu His Cys Val Asn Val Ser Val Val Ser Glu Xaa Val
 115 120 125
 Cys Ser Lys Leu Tyr Asp Pro Leu Tyr His Pro Ser Met Phe Cys Ala
 130 135 140
 Gly Gly Gly Gln Asp Gln Lys Asp Ser Cys Asn Gly Asp Ser Gly Gly
 145 150 155 160
 Pro Leu Ile Cys Asn Gly Tyr Leu Gln Gly Leu Val Ser Phe Gly Lys
 165 170 175
 Ala Pro Cys Gly Gln Leu Gly Val Pro Gly Val Tyr Thr Asn Leu Cys
 180 185 190
 Lys Phe Thr Glu Trp Ile Glu Lys Thr Val Gln Xaa Ser
 195 200 205

<210> 177
 <211> 1119
 <212> DNA
 <213> Homo sapien

<400> 177
 gcgcactcgc agccctggca ggcggcactg gtcattggaaa acgaattggt ctgctcgggc 60
 gtcctgggtgc atccgcagtg ggtgctgtca gccgcacact gtttccagaa ctctacacc 120
 atcgggctgg gctgcacag tcttgaggcc gaccaagagc caggagacca gatgggtggag 180
 gccagcctct ccgtacggca cccagagtag aacagaccct tgctcgctaa cgacctcatg 240
 ctcatcaagt tggacgaatc cgtgtccgag tctgacacca tccggagcat cagcattgct 300
 tcgcagtgcc ctaccgagg gaactcttgc ctcgtttctg gctggggtct gctggcgaa 360
 gatgctgtga ttgccatcca gtcccagact gtgggaggct gggagtgtga gaagctttcc 420
 caaccctggc aggggtgtac catttcggca acttccagtg caaggacgtc ctgctgcac 480
 ctactgggt gctcactact gctcactgca tccccggaa cactgtgatc aactagccag 540
 caccatagtt ctccgaagtc agactatcat gattactgtg ttgactgtgc tgtctattgt 600
 actaaccatg ccgatgttta ggtgaaatta gcgtcacttg gcctcaacca tcttggtatc 660
 cagttatcct cactgaattg agatttcctg cttcagtgtc agccattccc acataatttc 720
 tgacctacag aggtgaggga tcatatagct cttcaaggat gctgggtactc ccctcaciaa 780

```

ttcattttctc ctgtttagt gaaaggtgcg ccctctggag cctcccaggg tgggtgtgca      840
ggtcacaatg atgaatgtat gatcgtgttc ccattaccca aagcctttaa atccctcatg      900
ctcagtacac cagggcaggt ctagcatttc ttcatttagt gtatgctgtc cattcatgca      960
accacctcag gactcctgga ttctctgcct agttgagctc ctgcatgctg cctccttggg     1020
gaggtgaggg agagggccca tggttcaatg ggatctgtgc agttgtaaca cattaggtgc     1080
ttaataaaca gaagctgtga tgttaaaaaa aaaaaaaaaa     1119

```

<210> 178
 <211> 164
 <212> PRT
 <213> Homo sapien

<220>
 <221> VARIANT
 <222> (1)...(164)
 <223> Xaa = Any Amino Acid

```

<400> 178
Met Glu Asn Glu Leu Phe Cys Ser Gly Val Leu Val His Pro Gln Trp
 1      5      10      15
Val Leu Ser Ala His Cys Phe Gln Asn Ser Tyr Thr Ile Gly Leu
 20      25      30
Gly Leu His Ser Leu Glu Ala Asp Gln Glu Pro Gly Ser Gln Met Val
 35      40      45
Glu Ala Ser Leu Ser Val Arg His Pro Glu Tyr Asn Arg Pro Leu Leu
 50      55      60
Ala Asn Asp Leu Met Leu Ile Lys Leu Asp Glu Ser Val Ser Glu Ser
 65      70      75      80
Asp Thr Ile Arg Ser Ile Ser Ile Ala Ser Gln Cys Pro Thr Ala Gly
 85      90      95
Asn Ser Cys Leu Val Ser Gly Trp Gly Leu Leu Ala Asn Asp Ala Val
100     105     110
Ile Ala Ile Gln Ser Xaa Thr Val Gly Gly Trp Glu Cys Glu Lys Leu
115     120     125
Ser Gln Pro Trp Gln Gly Cys Thr Ile Ser Ala Thr Ser Ser Ala Arg
130     135     140
Thr Ser Cys Cys Ile Leu Thr Gly Cys Ser Leu Leu Leu Thr Ala Ser
145     150     155     160
Pro Gly Thr Leu

```

<210> 179
 <211> 250
 <212> DNA
 <213> Homo sapien

```

<400> 179
ctggagtgcc ttggtgtttc aagcccttgc aggaagcaga atgcaccttc tgaggcacct      60
ccagctgccc ccggccgggg gatgcgaggc tcggagcacc cttgcccggc tgtgattgct     120
gccaggcact gttcatctca gcttttctgt ccctttgctc ccggcaagcg cttctgctga     180
aagttcatat ctggagcctg atgtcttaac gaataaaggt cccatgctcc acccgaaaaa     240
aaaaaaaaaa                                     250

```

<210> 180
 <211> 202
 <212> DNA
 <213> Homo sapien

<400> 180

actagtccag	tgtggtggaa	ttccattgtg	ttgggcccac	cacaatggct	acctttaaca	60
tcacccagac	cccgcctctg	cccggtcccc	acgctgctgc	taacgacagt	atgatgctta	120
ctctgtact	cggaaactat	ttttatgtaa	ttaatgtatg	ctttcttggt	tataaatgcc	180
tgatttaaaa	aaaaaaaaaa	aa				202

<210> 181

<211> 558

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(558)

<223> n = A,T,C or G

<400> 181

tccytgtgkt	nagggttkkg	agacamccck	agacctwaan	ctgtgtcaca	gacttcyngg	60
aatgttttagg	cagtgttagt	aatttcytcg	taatgattct	gttattactt	tcctnattct	120
ttattcctct	ttcttctgaa	gattaatgaa	gttgaaaatt	gaggtggata	aatacaaaaa	180
ggtagtgtga	tagtataagt	atctaagtgc	agatgaaagt	gtgttatata	tatccattca	240
aaattatgca	agttagtaat	tactcagggt	taactaaatt	actttaatat	gctgttgaac	300
ctactctgtt	ccttggttag	aaaaaattat	aaacaggact	ttgttagttt	gggaagccaa	360
attgataata	ttctatgttc	taaaagtgtg	gctatacata	aattattaag	aaatatggaw	420
ttttattccc	aggaatatgg	kgttcatttt	atgaatatta	cscrggatag	awgtwtgagt	480
aaaaycagtt	ttggtwaata	ygtwaatatg	tcmtaaataa	acaakgcttt	gacttatttc	540
caaaaaaaaa	aaaaaaaa					558

<210> 182

<211> 479

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(479)

<223> n = A,T,C or G

<400> 182

acagggwttk	grggatgcta	agsecccrga	rwtygtttga	tccaaccctg	gcttwttttc	60
agaggggaaa	atggggccta	gaagttacag	mscatytagy	tggtgcgmtg	gcacccctgg	120
cstcacacag	astcccagag	agctgggact	acaggcacac	agtcactgaa	gcaggccctg	180
ttwgcaattc	acgttgccac	ctccaaacta	aacattcttc	atatgtgatg	tccttagtca	240
ctaagggttaa	actttcccac	ccagaaaagg	caacttagat	aaaatcttag	agtactttca	300
tactmttcta	agtcctcttc	cagcctcact	kkgagtcctm	cytggggggt	gataggaant	360
ntctcttgge	tttctcaata	aartctctat	ycatctcatg	tttaatttgg	tacgcatara	420
awtgstgara	aaattaaaat	gttctgggty	macttttaaa	araaaaaaaaa	aaaaaaaaaa	479

<210> 183

<211> 384

<212> DNA

<213> Homo sapien

<400> 183

aggcgggagc	agaagctaaa	gccaaagccc	aagaagagtg	gcagtgccag	cactgggtgcc	60
agtaccagta	ccaataacag	tgccagtgcc	agtgccagca	ccagtgggtg	cttcagtgtc	120
ggtgccagcc	tgaccgccac	tctcacattt	gggctcttcg	ctggccttgg	tggagctggc	180
gccagcacca	gtggcagctc	tggtgcctgt	ggtttctcct	acaagtgaga	ttttagatat	240

tggttaatcct gccagtcttt ctcttcaagc caggggtgcat cctcagaaac ctactcaaca	300
cagcactcta ggcagccact atcaatcaat tgaagttgac actctgcatt aratctattt	360
gccatttcaa aaaaaaaaaa aaaa	384

<210> 184

<211> 496

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(496)

<223> n = A,T,C or G

<400> 184

accgaattgg gaccgctggc ttataagcga tcatgtyynt ccrgtatkac ctcaacgagc	60
agggagatcg agtctatacg ctgaagaaat ttgacccgat gggacaacag acctgctcag	120
cccatacctgc tcggttctcc ccagatgaca aatactctsg acaccgaatc accatcaaga	180
aacgcttcaa ggtgctcatg acccagcaac cgcgcctgt cctctgaggg tcccttaaac	240
tgatgtcttt tctgccacct gttacccctc ggagactccg taaccaaact ctteggactg	300
tgagccctga tgcctttttg ccagccatac tctttggcat ccagtctctc gtggcgattg	360
attatgcttg tgtgaggcaa tcatggtggc atcacccata aagggaaacac atttgacttt	420
tttttctcat attttaaatt actacmagaw tattwmagaw waaatgawtt gaaaaactst	480
taaaaaaaaa aaaaaa	496

<210> 185

<211> 384

<212> DNA

<213> Homo sapien

<400> 185

gctggtagcc tatggcgkgg cccacggagg ggctcctgag gccacggrac agtgacttcc	60
caagtatcyt ggcgsgcgtc ttctaccgtc cctacctgca gatcttcggg cagattcccc	120
aggaggacat ggacgtggcc ctcatggagc acagcaactg ytcgtcggag cccggcttct	180
gggcacaccc tcctggggcc cagggcgggca cctgcgtctc ccagtatgcc aactggcttg	240
tggtgctgct cctcgtcctc ttctgctcgt tggccaacat cctgctgggc aacttgctca	300
ttgccatgtt cagttacaca ttccggcaaa tacagggcaa cagcgatctc tactgggaag	360
gcgcagcgtt accgcctcat cccg	384

<210> 186

<211> 577

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(577)

<223> n = A,T,C or G

<400> 186

gagttagctc ctccacaacc ttgatgaggt cgtctgcagt ggctctcgc ttcataccgc	60
tnccatcgtc atactgtagg tttgccacca cytcctggca tcttggggcg gcntaatatt	120
ccaggaaact ctcaatcaag tcaccgtcga tgaaacctgt gggctgggtc tgtcttccgc	180
tcggtgtgaa aggatctccc agaaggagt ctcgatcttc cccacacttt tgatgacttt	240
attgagtcga ttctgcatgt ccagcaggag gttgtaccag ctctctgaca gtgagggtcac	300
cagccctatc atgcggttga mcgtgccgaa garcaccgag ccttgtgtgg gggkkgaagt	360
ctcacccaga ttctgcatta ccagagagcc gtggcaaaaag acattgacaa actcgcccg	420
gtggaaaaag amcamctect ggargtgctn gccgctcctc gtcmgttggt ggcagcgctw	480

tcctttttgac acacaaacaa gttaaaggca ttttcagccc ccagaaantt gtcacatcc 540
aagatntcgc acagcactna tccagttggg attaaat 577

<210> 187
<211> 534
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(534)
<223> n = A,T,C or G

<400> 187
aacatcttcc tgtataatgc tgtgtaatat cgatccgatn ttgtctgstg agaatycatw 60
actkggaaaa gmaacattaa agcctggaca ctggtattaa aattcacaat atgcaacact 120
ttaaacagtg tgtcaatctg ctcccyynac tttgtcatca ccagtctggg aakaagggta 180
tgccctattc acacctgtta aaagggcgct aagcattttt gattcaacat cttttttttt 240
gacacaagtc cgaaaaaagc aaaagtaaac agttatyaat ttgttagcca attcactttc 300
ttcatgggac agagccatyt gatttaaaaa gcaaattgca taatattgag cttygggagc 360
tgatatttga gcggaagagt agccttttcta cttcaccaga cacaactccc tttcatattg 420
ggatgttnac naaagtwatg tctctwacag atgggatgct tttgtggcaa ttctgttctg 480
aggatctccc agtttattta ccacttgac aagaaggcgt tttcttctc aggc 534

<210> 188
<211> 761
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(761)
<223> n = A,T,C or G

<400> 188
agaaaccagt atctctnaaa acaacctctc ataccttgtg gacctaatth ttgtgtgcgtg 60
tgtgtgtgcg cgcataattat atagacaggc acatcttttt tacttttgta aaagcttatg 120
cctcttttgg atctatatct gtgaaagttt taatgatctg ccataatgtc ttggggacct 180
ttgtcttctg tgtaaagtgt actagagaaa acacctatnt tatgagtcaa tctagttngt 240
tttattcgac atgaaggaaa tttccagatn acaacactna caaactctcc ctkgackarg 300
ggggacaaaag aaaagcaaaa ctgamcataa raaacaatwa cctggtgaga arttgcataa 360
acagaaatwr ggtagtatat tgaarnacag catcattaaa rmgttwtkttt wttctccctt 420
gcaaaaaaca tgtacngact tcccgttgag taatgccaaag ttgttttttt tatnataaaa 480
cttgcccttc attacatggt tnaaagtggg gtgggtgggcc aaaatattga aatgatggaa 540
ctgactgata aagctgtaca aataagcagt gtgcctaaca agcaacacag taatgttgac 600
atgcttaatt cacaagtgt aatttcatta taaatgtttg ctaaaatata ctttgaacta 660
tttttctgtn ttcccagagc tgagatntta gattttatgt agtatnaagt gaaaaantac 720
gaaaataata acattgaaga aaaananaaa aaanaaaaaa a 761

<210> 189
<211> 482
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(482)
<223> n = A,T,C or G

<400> 189

tttttttttt	tttgccgatn	ctactatntt	attgcaggan	gtgggggtgt	atgcaccgca	60
caccgggggt	atnagaagca	agaaggaagg	agggagggca	cagccccttg	ctgagcaaca	120
aagccgcttg	ctgccttctc	tgtctgtctc	ctgggtgcagg	cacatgggga	gaccttcccc	180
aaggcagggg	ccaccagtcc	aggggtggga	atacaggggg	tgggangtgt	gcataagaag	240
tgataggcac	aggccacccg	gtacagaccc	ctcggtctct	gacaggtnga	tttcgaccag	300
gtcattgtgc	cctgcccagg	cacagcgtn	atctggaaaa	gacagaatgc	tttccttttc	360
aaatttggt	ngtcatngaa	ngggcanttt	tccaanttng	gctnggtctt	ggtacncttg	420
gttcggccca	gctccnctgc	caaaaantat	tcaccennct	ccnaattgct	tgcnggnccc	480
cc						482

<210> 190

<211> 471

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(471)

<223> n = A,T,C or G

<400> 190

tttttttttt	ttttaaaaca	gtttttcaca	acaaaattta	ttagaagaat	agtggttttg	60
aaaactctcg	catccagtga	gaactacat	acaccacatt	acagctngga	atgtntctcca	120
aatgtctggt	caaatagata	aatggaacca	ttcaatctta	cacatgcacg	aaagaacaag	180
cgcttttgac	atacaatgca	caaaaaaaaa	aggggggggg	gaccacatgg	attaaaaattt	240
taagtactca	tcacatacat	taagacacag	ttctagtcca	gtcnaaaatc	agaactgcnt	300
tgaaaaattt	catgtatgca	atccaaccaa	agaacttnat	tggtgatcat	gantntctcta	360
ctacatcnac	cttgatcatt	gccaggaach	aaaagttnaa	ancacncngt	acaaaaanaa	420
tctgtaattn	anttcaacct	ccgtacngaa	aaatnttntt	tatacactcc	c	471

<210> 191

<211> 402

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(402)

<223> n = A,T,C or G

<400> 191

gagggattga	aggctctgtt	tastgtcggm	ctgttcagcc	accaactcta	acaagttgct	60
gtcttccact	cactgtctgt	aagcttttta	acccagacwg	tatcttcata	aatagaacaa	120
attcttcacc	agtcacatct	tctaggacct	ttttggattc	agttagtata	agctcttcca	180
cttcctttgt	taagacttca	tctggtaaag	tcttaagttt	tgtagaaagg	aattyaattg	240
ctcgttctct	aacaatgtcc	tctccttgaa	gtatttggct	gaacaaccca	cctaaagtcc	300
ctttgtgcat	ccatttttaa	tatacttaat	agggcattgk	tnactaggt	taaattctgc	360
aagagtcac	tgtctgcaaa	agttgcgtta	gtatatctgc	ca		402

<210> 192

<211> 601

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(601)

<223> n = A,T,C or G

<400> 192

gagctcggat	ccaataatct	ttgtctgagg	gcagcacaca	tatncagtgc	catggnaact	60
ggtctacccc	acatgggagc	agcatgccgt	agntatataa	ggtcattccc	tgagtcagac	120
atgcytyttt	gaytaccgtg	tgccaagtgc	tggtgattct	yaacacacyt	ccatcccgyt	180
cttttggtga	aaaactggca	cttkctctga	actagcarga	catcacttac	aaattcaccc	240
acgagacact	tgaaagggtg	aacaaagcga	ytcttgcat	gctttttgtc	cctccggcac	300
cagttgtcaa	tactaaccgc	ctggtttgcc	tccatcacat	ttgtgatctg	tagctctgga	360
tacatctcct	gacagtactg	aagaacttct	tcttttgttt	caaaagcarc	tcttggtgcc	420
tggtggatca	ggttcccat	tcccagtcyg	aatgttcaca	tggcataatt	wacttccac	480
aaaacattgc	gatttgaggc	tcagcaacag	caaatcctgt	tccggcattg	gctgcaagag	540
cctcgatgta	gccggccagc	gccaaaggcag	gcgccgtgag	ccccaccagc	agcagaagca	600
g						601

<210> 193

<211> 608

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(608)

<223> n = A,T,C or G

<400> 193

atacagccca	natcccacca	cgaagatgcg	cttggtgact	gagaacctga	tgccggtcact	60
ggtcccgcgtg	tagccccagc	gactctccac	ctgctggaag	cggttgatgc	tgcaactcytt	120
cccaacgcag	gcagmagcgg	gscgcgtcaa	tgaactccay	tcgtggcttg	gggtkgacgg	180
tkaagtgcag	gaagaggctg	accacctcgc	ggtccaccag	gatgcccagc	tgtgcgggac	240
ctgcagcgaa	actcctcgat	ggatcatgagc	gggaagcgaa	tgaggcccag	ggccttgccc	300
agaaccttcc	gcctgtttct	tggcgctcacc	tgcatgtgct	gccgctgaca	ctcggcctcg	360
gaccagcgga	caaacggcrt	tgaacagccg	cacctcacgg	atgcccagtg	tgctcgctc	420
caggammgsc	accagcgtgt	ccaggtcaat	gtcggtggaag	ccctccgcgg	gtrattggcgt	480
ctgcagtggt	tttgctgatg	ttctccaggc	acaggctggc	cagctgcggt	tcacgaaga	540
gtcgcgcctg	cgtgagcagc	atgaaggcgt	tgctggctcg	cagttcttct	tcaggaactc	600
cacgcaat						608

<210> 194

<211> 392

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(392)

<223> n = A,T,C or G

<400> 194

gaacggctgg	accttgccctc	gcattgtgct	tgctggcagg	gaataccttg	gcaagcagyt	60
ccagtccgag	cagccccaga	ccgctgcgcg	ccgaagctaa	gcctgcctct	ggccttcccc	120
tccgcctcaa	tgacagaacca	gtagtgggag	cactgtgttt	agagttaaga	gtgaacactg	180
tttgatttta	cttgggaatt	tcctctgtta	tatagctttt	cccaatgcta	atttccaaac	240
aacaacaaca	aaataacatg	tttgccctgtt	aagttgtata	aaagtaggtg	attctgtatt	300
taaagaaaat	attactgtta	catatactgc	ttgcaatttc	tgtatttatt	gktinctstgg	360
aaataaatat	agttattaaa	ggttgtcant	cc			392

<210> 195
 <211> 502
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(502)
 <223> n = A,T,C or G

<400> 195
 ccsttkgagg ggkagggkyc cagttyccga gtggaagaaa caggccagga gaagtgcgtg 60
 ccgagctgag gcagatgttc ccacagtgac cccagagacc stgggstata gtytctgacc 120
 cctcncaagg aaagaccacs ttctggggac atgggctgga gggcaggacc tagaggcacc 180
 aagggaaggc cccattccgg ggstgttccc cgaggaggaa ggggaaggggc tctgtgtgcc 240
 ccccasgagg aagaggccct gagtcctggg atcagacacc ccttcacgtg tatccccaca 300
 caaatgcaag ctcaccaagg tcccctctca gtccccttcc stacaccctg amcggccact 360
 gscscacacc caccagagc acgccacccg ccatggggar tgtgtcaag gartcgcnng 420
 gcarcgtgga catctngtcc cagaaggggg cagaatctcc aatagangga ctgarcmstt 480
 gctnanaaaa aaaaaaaaaa aa 502

<210> 196
 <211> 665
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(665)
 <223> n = A,T,C or G

<400> 196
 ggttacttgg tttcattgcc accacttagt ggatgtcatt tagaaccatt ttgtctgtc 60
 cctctggaag ccttgccgag agcggacttt gtaattgttg gagaataact gctgaatttt 120
 wagctgtttk gagttgatts gcaccactgc acccacaact tcaatatgaa aacyawttga 180
 actwatttat tatcttgtga aaagtataac aatgaaaatt ttgttcatac tgtattkatc 240
 aagtatgatg aaaagcaawa gatataatatt cttttattat gttaaattat gattgccatt 300
 attaatcggc aaaatgtgga gtgtatgttc ttttcacagt aatatatgcc ttttgtaact 360
 tcacttgggt attttattgt aaatgartta caaaattctt aatttaagar aatggtatgt 420
 watatttatt tcattaattt ctttcctkgt ttacgtwaat ttgaaaaga wtgcattgatt 480
 tcttgacaga aatcgatctt gatgctgtgg aagtagtttg acccacatcc ctatgagttt 540
 ttcttagaat gtataaagggt ttagcccat cnaacttcaa agaaaaaat gaccacatac 600
 tttgcaatca ggctgaaatg tggcatgctn ttctaattcc aactttataa actagcaaan 660
 aagtg 665

<210> 197
 <211> 492
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(492)
 <223> n = A,T,C or G

<400> 197
 tttntttttt ttttttttgc aggaaggatt ccatttattg tggatgcatt ttcacaatat 60
 atgtttattg gagcgatcca ttatcagtga aaagtatcaa gtgtttataa natttttagg 120


```

aaggcagatt cacagaacat gctngtcngc ttgcagtttt acctcgtana gatnacagag      180
aattatagtc naaccagtaa acnaggaatt tacttttcaa aagattaaat ccaaactgaa      240
caaaattcta ccctgaaact tactccatcc aaatatggga ataanagtca gcagtgatac      300
attctcttct gaactttaga ttttctagaa aaatatgtaa tagtgatcag gaagagctct      360
tgttcaaaag tacaacnaag caatgttccc ttaccatagg ccttaattca aactttgatc      420
catttcactc ccatcacggg agtcaatgct acctgggaca cttgtatttt gtccatnctg      480
ancntggctt aa                                                              492

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<210> 198

<211> 478

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (478)

<223> n = A,T,C or G

<400> 198

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ttnttttgn atttcantct gtannaanta ttttcattat gtttattana aaaatatnaa      60
tgtntccaacn acaaatcatn ttacntnagt aagaggccan ctacattgta caacatacac      120
tgagtatatatt ttgaaaagga caagttttaa gtanacncat attgccganc atancacatt      180
tatacatggc ttgattgata tttagcacag canaaactga gtgagttacc agaaanaaat      240
natatatgtc aatcngattt aagatacaaa acagatccta tggtagatan catcntgtag      300
gagttgtggc tttatgttta ctgaaagtca atgcagttcc tgtacaaaga gatggccgta      360
agcattctag tacctctact ccatggttaa gaatcgtaca cttatgttta catatgtnc      420
gggtaagaat tgtgttaagt naanttatgg agagggtccan gagaaaaatt tgatncaa      478

```

<210> 199

<211> 482

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (482)

<223> n = A,T,C or G

<400> 199

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agtgacttgt cctccaacaa aacccttga tcaagtttgt ggcactgaca atcagaccta      60
tgctagttcc tgtcatctat tegetactaa atgcagactg gagggggacca aaaaggggca      120
tcaactccag ctggattatt ttggagcctg caaatctatt cctacttgta cggactttga      180
agtgattcag tttcctctac ggatgagaga ctggctcaag aatatcctca tgcagcttta      240
tgaagccnac tctgaacacg ctggttatct nagatgagaa ncagagaaat aaagtcnaga      300
aaatttacct ggangaaaag aggccttngg ctggggacca tcccattgaa ccttctctta      360
anggacttta agaanaaaact accacatgtn tgtngtatcc tgggtgcengg ccgtttantg      420
aacntngacn ncacccttnt ggaatanant cttgacngcn tcctgaactt gctcctctgc      480
ga                                                              482

```

<210> 200

<211> 270

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (270)

<223> n = A,T,C or G

<400> 200
 cggccgcaag tgcaactcca gctggggcgc tgccggacgaa gattctgcca gcagttgggc 60
 cgactgcgac gacggcggcg gcgacagtcg caggtgcagc gggggcgccct ggggtcttgc 120
 aaggtgagc tgacgccgca gaggtcgtgt caggtcccaac gaccttgacg ccgtcgggga 180
 cagccggaac agagcccggt gaangcggga ggccctcgggg agcccccgcg gaaggcgccg 240
 ccgagagata cgcaggtgca ggtggccgcc 270

<210> 201
 <211> 419
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(419)
 <223> n = A,T,C or G

<400> 201
 tttttttttt ttttggaaac tactgcgagc acagcaggtc agcaacaagt ttatttttgca 60
 gctagcaagg taacagggtg gggcatgggt acatgttcag gtcaacttcc tttgtcgtgg 120
 ttgattgggt tgtctttatg ggggcggggt ggggtagggg aaancgaagc anaantaaca 180
 tggagtgggt gcaccctccc tgtagaacct gggtacnaaa gcttggggca gttcacctgg 240
 tctgtgaccg tcatttttctt gacatcaatg ttattagaag tcaggatatc ttttagagag 300
 tccactgtnt ctggagggag attaggggtt cttgccaana tccaancaa atccacntga 360
 aaaagtggga tgatncangt acngaatacc ganggcatan ttctcatant cggtggcca 419

<210> 202
 <211> 509
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(509)
 <223> n = A,T,C or G

<400> 202
 tttntttttt tttttttttt tttttttttt tttttttttt tttttttttt tttttttttt 60
 tggcacttaa tccattttta tttcaaaatg tctacaaant ttnaatncnc cattatacng 120
 gtnattttnc aaaatctaaa nnttattcaa atntnagcca aantccttac ncaaattnnaa 180
 tacnncnaaa aatcaaaaat atacntntct ttcagcaaac ttngttacat aaattaaaaa 240
 aatatatacy gctgggtgtt tcaaagtaca attatcttaa cactgcaaac atnttttnaa 300
 ggaactaaaa taataaaaaa cactnccgca aaggttaaag ggaacaacaa attcntttta 360
 caacancnnc nattataaaa atcatatctc aaatcttagg ggaatatata cttcacacng 420
 ggatcttaac ttttactnca ctttgtttat ttttttanaa ccattgtntt gggcccaaca 480
 caatggnaat nccnccnccn tggactagt 509

<210> 203
 <211> 583
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(583)
 <223> n = A,T,C or G

<400> 203

tttttttttt	ttttttttga	ccccctctt	ataaaaaaca	agttaccatt	ttatttttact	60
tacacatatt	tattttataa	ttggtattag	atattcaaaa	ggcagctttt	aaaatcaaac	120
taaatggaaa	ctgccttaga	tacataattc	ttaggaatta	gcttaaaatc	tgctaaaagt	180
gaaaatcttc	tctagctctt	ttgactgtaa	atttttgact	cttgtaaaac	atccaaattc	240
atttttcttg	tctttaaaat	tatctaattc	ttccattttt	tccctattcc	aagtcaattt	300
gcttctctag	cctcatttcc	tagctcttat	ctactattag	taagtggctt	ttttcctaaa	360
agggaaaaca	ggaagagana	atggcacaca	aaacaaacat	tttatattca	tatttctacc	420
tacgttaata	aaatagcatt	ttgtgaagcc	agctcaaaag	aaggcttaga	tccttttatg	480
tccatttttag	tcactaaacg	atatcnaaag	tgccagaatg	caaaagggtt	gtgaacattt	540
attcaaaagc	taatataaga	tatttcacat	actcatcttt	ctg		583

<210> 204

<211> 589

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)... (589)

<223> n = A,T,C or G

<400> 204

tttttttttt	tttttttttt	tttttttctc	ttcttttttt	ttganaatga	ggatcgagtt	60
tttctctctc	tagatagggc	atgaagaaaa	ctcatctttc	cagcttttaa	ataacaatca	120
aatctcttat	gctatatcat	attttaagtt	aaactaatga	gtcactggct	tatcttctcc	180
tgaaggaaat	ctgttcattc	ttctcattca	tatagttata	tcaagtacta	ccttgcatat	240
tgagagggtt	ttcttctcta	tttacacata	tattttccatg	tgaatttgta	tcaaaccctt	300
attttcatgc	aaactagaaa	ataatgtntt	cttttgcata	agagaagaga	acaatatnag	360
cattacaaaa	ctgctcaaat	tgtttggtta	gnntatccat	tataattagt	tnnggcaggag	420
ctaatacaaa	tcacattttac	ngacnagcaa	taataaaaact	gaagtaccag	ttaaatatcc	480
aaaataatta	aaggaacatt	tttagcctgg	gtataattag	ctaattcact	ttacaagcat	540
ttattnagaa	tgaattcaca	tgttattatt	ccntagccca	acacaatgg		589

<210> 205

<211> 545

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)... (545)

<223> n = A,T,C or G

<400> 205

tttttntttt	ttttttcagt	aataatcaga	acaatattta	tttttatatt	taaaattcat	60
agaaaagtgc	cttacattta	ataaaagtgt	gtttctcaaa	gtgatcagag	gaattagata	120
tngtcttgaa	caccaatatt	aatttgagga	aaatacacca	aaatacatta	agtaaattat	180
ttaagatcat	agagcttgta	agtgaaaaaga	taaaatttga	cctcagaaac	tctgagcatt	240
aaaaatccac	tatttagcaa	taaattacta	tggacttctt	gctttaattt	tgtgatgaat	300
atgggggtgc	actggtaaac	caacacattc	tgaaggatac	attacttagt	gatagattct	360
tatgtacttt	gctanatnac	gtggatatga	gttgacaagt	ttctctttct	tcaatctttt	420
aaggggcnga	ngaaatgagg	aagaaaagaa	aaggattacg	catactgttc	tttctatngg	480
aaggattaga	tatgttttct	ttgccaatat	taaaaaaata	ataatgttta	ctactagtga	540
aacc						545

<210> 206

<211> 487

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(487)

<223> n = A,T,C or G

<400> 206

tttttttttt	tttttttagtc	aagttttctna	tttttattat	aattaaagtc	ttggtcattt	60
catttattag	ctctgcaact	tacatattta	aattaaagaa	acgttnttag	acaactgtna	120
caatttataa	atgtaagggtg	ccattattga	gtanatatat	tcctccaaga	gtggatgtgt	180
cccttctccc	accaactaat	gaancagcaa	cattagttta	attttattag	tagatnatac	240
actgctgcaa	acgctaattc	tcttctccat	ccccatgtng	atattgtgta	tatgtgtgag	300
ttggtnagaa	tgcatcanca	atctnacaat	caacagcaag	atgaagctag	gcntgggctt	360
tcggtgaaaa	tagactgtgt	ctgtctgaat	caaatgatct	gacctatcct	cgggtggcaag	420
aactcttcga	accgcttcct	caaaggcngc	tgccacattt	gtggcntctn	ttgcacttgt	480
ttcaaaa						487

<210> 207

<211> 332

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(332)

<223> n = A,T,C or G

<400> 207

tgaattggct	aaaagactgc	atttttanaa	ctagcaactc	ttatttcttt	cctttaaaaa	60
tacatagcat	taaatcccaa	atcctattta	aagacctgac	agcttgagaa	ggtcactact	120
gcatttatag	gaccttctgg	tggttctgct	gttacntttg	aantctgaca	atccttgana	180
atctttgcat	gcagaggagg	taaaagggtat	tggattttca	cagaggaana	acacagcgca	240
gaaatgaagg	ggccaggctt	actgagcttg	tccactggag	ggctcatggg	tgggacatgg	300
aaaagaaggc	agcctaggcc	ctggggagcc	ca			332

<210> 208

<211> 524

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(524)

<223> n = A,T,C or G

<400> 208

agggcggtgt	gcgaggggcg	ttactgtttt	gtctcagtaa	caataaatac	aaaaagactg	60
gttgtgttcc	ggccccatcc	aaccacgaag	ttgatttctc	ttgtgtgcag	agtgactgat	120
tttaaaggac	atggagcttg	tcacaatgtc	acaatgtcac	agtgtgaagg	gcacactcac	180
tcccgcgtag	ttcacattta	gcaaccaaca	atagctcatg	agtccatact	tgtaaatact	240
tttggcagaa	tacttnttga	aacttgacga	tgataactaa	gatccaagat	atttcccaaa	300
gtaaatagaa	gtgggtcata	atattaatta	cctgttcaca	tcagcttcca	tttacaagtc	360
atgagcccag	acactgacat	caaactaagc	ccacttagac	tcctcaccac	cagtctgtcc	420
tgtcatcaga	caggaggctg	tcaccttgac	caaattctca	ccagtcaatc	atctatccaa	480
aaaccattac	ctgatccact	tccggtaatg	caccaccttg	gtga		524

<210> 209
 <211> 159
 <212> DNA
 <213> Homo sapien

<400> 209
 ggggtgaggaa atccagagtt gccatggaga aaattccagt gtcagcattc ttgctccttg 60
 tggccctctc ctacactctg gccagagata ccacagtc aaacctggagcc aaaaaggaca 120
 caaaggactc tcgacccaaa ctgccccaga ccctctcca 159

<210> 210
 <211> 256
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(256)
 <223> n = A,T,C or G

<400> 210
 actccctggc agacaaaggc agaggagaga gctctgttag ttctgtgttg ttgaactgcc 60
 actgaatttc ttccacttg gactattaca tgccanttg gggactaatg gaaaaacgta 120
 tggggagatt ttanccaatt tangtntgta aatggggaga ctggggcagg cgggagagat 180
 ttgcaggggtg naaatgggan ggctgggttg ttanatgaac agggacatag gaggtaggca 240
 ccaggatgct aaatca 256

<210> 211
 <211> 264
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(264)
 <223> n = A,T,C or G

<400> 211
 acattgtttt tttagataa agcattgaga gagctctcct taacgtgaca caatggaagg 60
 actggaacac ataccacat ctttgttctg agggataatt ttctgataaa gtcttgctgt 120
 atattcaagc acatatgtta tatattattc agttccatgt ttatagccta gttaaggaga 180
 ggggagatac attcngaaag aggactgaaa gaaatactca agtnggaaaa cagaaaaaga 240
 aaaaaaggag caaatgagaa gcct 264

<210> 212
 <211> 328
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(328)
 <223> n = A,T,C or G

<400> 212
 acccaaaaat ccaatgctga atatttggtc tcattattcc canattcttt gattgtcaaa 60
 ggatttaatg ttgtctcagc ttgggcactt cagttaggac ctaaggatgc cagccggcag 120
 gtttatatat gcagcaacaa tattcaagcg cgacaacagg ttattgaact tgcccgccag 180

ttnaattttca	ttcccattga	cttgggatcc	ttatcatcag	ccagagagat	tgaaaattta	240
cccctacnac	tctttactct	ctgganaggg	ccagtgggtg	tagctataag	cttggccaca	300
tttttttttc	ctttattcct	ttgtcaga				328

<210> 213

<211> 250

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(250)

<223> n = A,T,C or G

<400> 213

acttatgagc	agagcgacat	atccnagtgt	agactgaata	aaactgaatt	ctctccagtt	60
taaagcattg	ctcactgaag	ggatagaagt	gactgccagg	agggaaagta	agccaaggct	120
cattatgcca	aagganatat	acattttcaat	tctccaaact	tcttctcat	tccaagagtt	180
ttcaatat	gcatgaacct	gctgataanc	catgttaana	aacaaatata	tctctnacct	240
tctcatcggt						250

<210> 214

<211> 444

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(444)

<223> n = A,T,C or G

<400> 214

accagaatc	caatgctgaa	tatttggtt	cattattccc	agattctttg	attgtcaaag	60
gatttaagt	tgtctcagct	tgggcacttc	agttaggacc	taaggatgcc	agccggcagg	120
tttatatatg	cagcaacaat	attcaagcgc	gacaacaggt	tattgaactt	gcccggcagg	180
tgaatttcat	tcccattgac	ttgggatcct	tatcatcagc	canagagatt	gaaaatttac	240
ccctaogact	ctttactctc	tggagagggc	cagtgggtgt	agctataagc	ttggccacat	300
ttttttttcc	tttattcctt	tgtcagagat	gcgattcctc	catatgctan	aaaccaacag	360
agtgaacttt	acaaaattcc	tataganatt	gtgaataaaa	ccttacctat	agttgccatt	420
actttgctct	ccctaataata	cctc				444

<210> 215

<211> 366

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(366)

<223> n = A,T,C or G

<400> 215

acttatgagc	agagcgacat	atccaagtgt	anactgaata	aaactgaatt	ctctccagtt	60
taaagcattg	ctcactgaag	ggatagaagt	gactgccagg	agggaaagta	agccaaggct	120
cattatgcca	aagganatat	acattttcaat	tctccaaact	tcttctcat	tccaagagtt	180
ttcaatat	gcatgaacct	gctgataagc	catgttgaga	aacaaatata	tctctgacct	240
tctcatcggt	aagcagaggc	tgtaggcaac	atggaccata	gcgaanaaaa	aacttagtaa	300
tccaagctgt	tttctacact	gtaaccaggt	ttccaaccaa	ggtggaaatc	tcctatactt	360

ggtgcc

366

<210> 216

<211> 260

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(260)

<223> n = A,T,C or G

<400> 216

ctgtataaac	agaactccac	tcgacgagg	agggccgggc	caggagaatc	tcgcttgtc	60
caagacaggg	gcctaaggag	ggtctccaca	ctgctnntaa	gggctntnc	atTTTTttat	120
taataaaaag	tnnaaaaggc	ctcttctcaa	ctTTTTttcc	ttnggctgga	aaatttaaaa	180
atcaaaaatt	tctnaagtt	ntcaagctat	catatatact	ntatcctgaa	aaagcaacat	240
aattcttct	tcctctctt					260

<210> 217

<211> 262

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(262)

<223> n = A,T,C or G

<400> 217

acctacgtgg	gtaagtttan	aatgttata	atttcaggaa	naggaacgca	tataattgta	60
tcttgccctat	aattttctat	tttaataagg	aaatagcaaa	ttgggggtggg	gggaatgtag	120
ggcattctac	agtttgagca	aatgcaatt	aatgtggaa	ggacagcact	gaaaaatttt	180
atgaataatc	tgtatgatta	tatgtctcta	gagtagattt	ataattagcc	acttacccta	240
atatacttca	tgcttgtaaa	gt				262

<210> 218

<211> 205

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(205)

<223> n = A,T,C or G

<400> 218

accaaggtgg	tcgattaccg	gaantggatc	aangacacca	tcgtggccaa	cccctgagca	60
cccctatcaa	ctcccctttg	tagtaaaactt	ggaaccttgg	aaatgaccag	gccaaagactc	120
aggcctcccc	agttctactg	acctttgtcc	ttangtntna	ngtccagggg	tgctaggaaa	180
anaaatcagc	agacacaggt	gtaaa				205

<210> 219

<211> 114

<212> DNA

<213> Homo sapien

<400> 219

tactgttttg tctcagtaac aataaatata aaaagactgg ttgtgttccg gccccatcca 60
accacgaagt tgatttctct tgtgtgcaga gtgactgatt ttaaaggaca tgga 114

<210> 220
<211> 93
<212> DNA
<213> Homo sapien

<400> 220
actagccagc acaaaaaggca gggtagcctg aattgctttc tgctctttac atttctttta 60
aaataagcat ttagtgctca gtccctactg agt 93

<210> 221
<211> 167
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(167)
<223> n = A,T,C or G

<400> 221
actangtgca ggtgcgaca aatatttgtc gatattccct tcattcttga ttccatgagg 60
tctttttgcc agcctgtggc tctactgtag taagtctctg ctgatgagga gccagnatgc 120
ccccactac ctccctgac gctccccana aatcacccaa cctctgt 167

<210> 222
<211> 351
<212> DNA
<213> Homo sapien

<400> 222
agggcgtggg gcggagggcg gtactgacct cattagtagg aggatgcatt ctggcacccc 60
gttcttcacc tgtcccccaa tccttaaaag gccatactgc ataaagtcaa caacagataa 120
atgttttgctg aattaaagga tggatgaaaa aaattaataa tgaatttttg cataatccaa 180
ttttctcttt tatatttcta gaagaagttt ctttgagcct attagatccc gggaatcttt 240
taggtgagca tgattagaga gcttgtaggg tgcttttaca tatatctggc atatttgagt 300
ctcgtatcaa aacaatagat tggtaaaggg ggtattattg tattgataag t 351

<210> 223
<211> 383
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(383)
<223> n = A,T,C or G

<400> 223
aaaacaaaca acaaaaaaaa acaattcttc attcagaaaa attatcttag ggactgatat 60
tggttaattat ggtcaattta atwrtrttkt ggggcatttc cttacattgt cttgacaaga 120
ttaaaatgtc tgtgccaaaa ttttgattt tatttgagga cttcttatca aaagtaatgc 180
tgccaaagga agtctaagga attagtagtg ttcccmccac ttgtttggag tgtgctattc 240
taaaagattt tgatttctct gaatgacaat tatattttta ctttggtggg ggaaanagtt 300
ataggaccac agtcttcact tctgatactt gtaaattaat cttttattgc acttgttttg 360
accattaagc tatatgttta aaa 383

<210> 224
 <211> 320
 <212> DNA
 <213> Homo sapien

<400> 224
 cccctgaagg cttcttggtta gaaaatagta cagttacaac caataggaac aacaaaaaga 60
 aaaagtttgt gacattgtag tagggagtgt gtaccctta ctcccatca aaaaaaaat 120
 ggatacatgg ttaaaggata raagggaat atttatcat atgttctaaa agagaaggaa 180
 gagaaaatac tactttctcr aaatggaagc ccttaaaggt gctttgatac tgaaggacac 240
 aaatgtggcc gtccatcctc ctttaragtt gcatgacttg gacacggtaa ctgttgacgt 300
 tttaractcm gcattgtgac 320

<210> 225
 <211> 1214
 <212> DNA
 <213> Homo sapien

<400> 225
 gaggactgca gcccgcactc gcagccctgg caggcggcac tggtcatgga aaacgaattg 60
 ttctgctcgg gcgtcctggt gcatccgcag tgggtgctgt cagccgcaca ctgtttccag 120
 aactcctaca ccatcgggct gggcctgcac agtcttgagg ccgaccaaga gccagggagc 180
 cagatggtgg aggccagcct ctccgtacgg caccagagt acaacagacc ctgtctcgtc 240
 aacgacctca tgctcatcaa gttggacgaa tccgtgtccg agtctgacac catccggagc 300
 atcagcattg ctccgcagtg ccctaccgcg gggaactctt gcctcgtttc tggctgggggt 360
 ctgctggcga acggcagaat gcctaccgtg ctgcagtgcg tgaacgtgtc ggtgggtgtc 420
 gaggaggtct gcagtaagct ctatgaccgg ctgtaccacc ccagcatgtt ctgcgccggc 480
 ggagggcaag accagaagga ctctgcaac ggtgactctg gggggcccct gatctgcaac 540
 gggtaacttg agggccttgt gtctttcgga aaagcccctg gtggccaagt tggcgtgcca 600
 ggtgtctaca ccaacctctg caaattcact gagtggatag agaaaaccgt ccaggccagt 660
 taactctggg gactgggaac ccatgaaatt gacccccaaa tacatcctgc ggaaggaatt 720
 caggaatact tgttcccagc ccctcctccc tcaggcccag gaggccagc cccagcccc 780
 tcctccctca aaccaagggt acagatcccc agcccctcct ccctcagacc caggagtcca 840
 gacccccag cccctcctcc ctccagacca ggagtccagc ccctcctccc tcagaccag 900
 gagtccagac cccccagccc ctctccctc agaccaggg gtccaggccc ccaaccctc 960
 ctccctcaga ctccagagtc caagccccc acccctcctt cccagagccc agaggtccag 1020
 gtcccagccc ctctccctc agaccagcg gtccaatgcc acctagactc tccctgtaca 1080
 cagtgcctcc ttgtggcacg ttgacccaac cttaccagtt ggtttttcat tttttgtccc 1140
 tttcccttag atccagaaat aaagtctaag agaagcgcaa aaaaaaaaaa aaaaaaaaaa 1200
 aaaaaaaaaa aaaa 1214

<210> 226
 <211> 119
 <212> DNA
 <213> Homo sapien

<400> 226
 acccagtatg tgcagggaga cggaacccca tgtgacagcc cactccacca gggttcccaa 60
 agaacctggc ccagtcataa tcattcatcc tgacagtggc aataatcacg ataaccagt 119

<210> 227
 <211> 818
 <212> DNA
 <213> Homo sapien

<400> 227
 acaattcata gggacgacca atgaggacag ggaatgaacc cggctctccc ccagccctga 60

tttttgctac	atatggggtc	ccttttcatt	ctttgcaaaa	acactggggtt	ttctgagaac	120
acggacgggtt	cttagcacaa	tttgtgaaat	ctgtgtaraa	ccgggctttg	caggggagat	180
aattttcctc	ctctggagga	aaggtgggtga	ttgacaggca	gggagacagt	gacaaggcta	240
gagaaagcca	cgctcggcct	tctctgaacc	aggatggaac	ggcagacccc	tgaaaacgaa	300
gcttgtcccc	ttccaatcag	ccacttctga	gaacccccat	ctaacttctc	actggaaaag	360
agggcctcct	caggagcagt	ccaagagttt	tcaaagataa	cgtgacaact	accatctaga	420
ggaaagggtg	caccctcagc	agagaagccg	agagcttaac	tctggtcgtt	tccagagaca	480
acctgctggc	tgtcttggga	tgcgcccagc	ctttgagagg	ccactacccc	atgaacttct	540
gccatccact	ggacatgaag	ctgaggacac	tgggcttcaa	cactgagttg	tcatgagagg	600
gacaggctct	gccctcaagc	cggctgaggg	cagcaaccac	tctcctcccc	tttctcacgc	660
aaagccattc	ccacaaatcc	agaccatacc	atgaagcaac	gagacccaaa	cagtttggct	720
caagaggata	tgaggactgt	ctcagcctgg	ctttgggctg	acaccatgca	cacacacaag	780
gtccacttct	aggttttcag	cctagatggg	agtcgtgt			818

<210> 228
 <211> 744
 <212> DNA
 <213> Homo sapien

<400> 228						
actggagaca	ctgttgaact	tgatcaagac	ccagaccacc	ccaggtctcc	ttcgtgggat	60
gtcatgacgt	ttgacatacc	tttggaaacga	gcctcctcct	tggagatgg	aagaccgtgt	120
tcgtggccga	cctggcctct	cctggcctgt	ttcttaagat	gcggagtcac	atttcaatgg	180
taggaaaagt	ggcttcgtaa	aatagaagag	cagtcactgt	ggaactacca	aatggcgaga	240
tgctcgggtg	acattggggg	gctttgggat	aaaagattta	tgagccaact	attctctggc	300
accagattct	aggccagttt	gttccactga	agcttttccc	acagcagtc	acctctgcag	360
gctggcagct	gaatggcttg	ccggtggctc	tgtggcaaga	tcacactgag	atcgatgggt	420
gagaaggcta	ggatgcttgt	ctagtgttct	tagctgtcac	gttggctcct	tccaggttgg	480
ccagacgggtg	ttggccactc	ccttctaaaa	cacaggcgcc	ctcctgggtga	cagtgaccgc	540
ccgtggatat	taattggcca	ttccagcagt	cccagttatg	catttcaagt	ttggggtttg	600
ttcttttctg	taatgttcct	ctgtgttgct	agctgtcttc	atttcctggg	ctaagcagca	660
ttgggagatg	tggaccagag	atccactcct	taagaaccag	tggcgaaaga	cactttcttt	720
cttcactctg	aagtagctgg	tggt				744

<210> 229
 <211> 300
 <212> DNA
 <213> Homo sapien

<400> 229						
cgagtctggg	ttttgtctat	aaagtttgat	ccctcctttt	ctcatccaaa	tcattgtgaac	60
cattacacat	cgaaataaaa	gaaaggtggc	agacttgccc	aacgccaggc	tgacatgtgc	120
tgcagggttg	ttgtttttta	attattattg	ttagaaacgt	cacccacagt	ccctgttaat	180
ttgtatgtga	cagccaactc	tgagaaggtc	ctatttttcc	acctgcagag	gatccagtct	240
cactaggctc	ctccttgccc	tcacactgga	gtctccgcca	gtgtgggtgc	ccactgacat	300

<210> 230
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 230						
cagcagaaca	aatacaata	tgaagagtgc	aaagatctca	taaaatctat	gctgaggaat	60
gagcgacagt	tcaaggagga	gaagcttgca	gagcagctca	agcaagctga	ggagctcagg	120
caataaaaag	tccgtgttca	cactcaggaa	cgagagctga	cccagttaag	ggagaagttg	180
cgggaaggga	gatagtcctc	cctctcattg	aatgagctac	tccaggccct	cctcactccg	240
gatgaaccgg	acaagtccca	ggggcaggac	ctccaagaaa	cagacctcgg	ccgcgaccac	300
g						301

<210> 231
<211> 301
<212> DNA
<213> Homo sapien

<400> 231
gcaagcacgc tggcaaactc ctgtcaggtc agctccagag aagccattag tcatttttagc 60
caggaactcc aagtccacat ccttggcaac tggggacttg cgcaggtag ccttgaggat 120
ggcaacacgg gacttctcat caggaagtgg gatgtagatg agctgatcaa gacggccagg 180
tctgaggatg gcaggatcaa tgatgtcagg ccggttggtg ccgccaatga tgaacacatt 240
tttttttgtg gacatgccat ccatttctgt caggatctgg ttgatgactc ggtcagcagc 300
c 301

<210> 232
<211> 301
<212> DNA
<213> Homo sapien

<400> 232
agtaggtatt tcgtgagaag ttcaacacca aaactggaac atagttctcc ttcaagtgtt 60
ggcgacagcg gggcttctctg attctggaat ataactttgt gttaaattaac agccacctat 120
agaagagtcc atctgctgtg aaggagagac agagaactct gggttccgtc gtccgtgtcca 180
cgtgctgtac caagtgtctg tgccagcctg ttacctgttc tactgaaaa tctggctaata 240
gctcttgtgt atcacttctg attctgacaa tcaatcaatc aatggcctag agcactgact 300
g 301

<210> 233
<211> 301
<212> DNA
<213> Homo sapien

<400> 233
atgactgact tcccagtaag gctctctaag gggtaagtag gaggatccac aggatttgag 60
atgctaaggc cccagagatc gtttgatcca accctcttat ttccagaggg gaaaatgggg 120
cctagaagtt acagagcatc tagctggtgc gctggcacc cttggcctcac acagactccc 180
gagtagctgg gactacaggc acacagtcac tgaagcaggc cctgttagca attctatgcg 240
tacaaattaa catgagatga gtagagactt tattgagaaa gcaagagaaa atcctatcaa 300
c 301

<210> 234
<211> 301
<212> DNA
<213> Homo sapien

<400> 234
aggtcctaca catcgagact catccatgat tgatatgaat ttaaaaatta caagcaaaga 60
cattttattc atcatgatgc tttcttttgt ttcttctttt cgttttcttc tttttctttt 120
tcaatttcag caacatactt ctcaatttct tcaggattta aaatcttgag ggattgatct 180
cgccatcatg cagcaagttc aatgtttttg ccacctgact gaaccacttc caggagtgcc 240
ttgatcacca gcttaatggg cagatcatct gcttcaatgg cttcgtcagt atagttcttc 300
t 301

<210> 235
<211> 283
<212> DNA
<213> Homo sapien

<400> 235

tggggctgtg	catcaggcgg	gtttgagaaa	tattcaattc	tcagcagaag	ccagaatttg	60
aattccctca	tcttttaggg	aatcatttac	caggtttgga	gaggattcag	acagctcagg	120
tgctttcact	aatgtctctg	aacttctgtc	cctctttgtt	catggatagt	ccaataaata	180
atgttatctt	tgaactgatg	ctcataggag	agaatataag	aactctgagt	gatatcaaca	240
ttagggattc	aaagaaatat	tagatttaag	ctcacactgg	tca		283

<210> 236

<211> 301

<212> DNA

<213> Homo sapien

<400> 236

aggtcctcca	ccaactgcct	gaagcacggt	taaaattggg	agaagtata	gtgcagcata	60
aatactttta	aatcgatcag	atttccctaa	cccacatgca	atcttcttca	ccagaagagg	120
tcggagcagc	atcattaata	ccaagcagaa	tgcgtaatag	ataaatacaa	tggtatatag	180
tgggtagacg	gcttcatgag	tacagtgtac	tgtggtagcg	taatctggac	ttgggttgta	240
aagcatcgty	taccagtcag	aaagcatcaa	tactcgacat	gaacgaatat	aaagaacacc	300
a						301

<210> 237

<211> 301

<212> DNA

<213> Homo sapien

<400> 237

cagtggtagt	ggtggtggac	gtggcggttg	tcgtggtgcc	ttttttggtg	cccgtcacaa	60
actcaatttt	tgttcgctcc	tttttggect	tttccaattt	gtccatctca	attttctggg	120
ccttggtctaa	tgccctcatag	taggagtcct	cagaccagcc	atggggatca	aacataatcct	180
ttgggtagtt	ggtgccaagc	tcgtcaatgg	cacagaatgg	atcagcttct	cgtaaactcta	240
gggttcggaa	attcttttctt	cctttgggata	atgtagttca	tatccattcc	ctcctttatc	300
t						301

<210> 238

<211> 301

<212> DNA

<213> Homo sapien

<400> 238

gggcagggttt	tttttttttt	ttttttgatg	gtgcagaccc	ttgctttatt	tgtctgactt	60
gttcacagtt	cagccccctg	ctcagaaaac	caacggggcca	gctaaggaga	ggaggaggca	120
ccttgagact	tccggagtcg	aggctctcca	gggttcccca	gcccatacat	cattttctgc	180
acccccctgcc	tggaagcag	ctccctgggg	ggtgggaatg	ggtgactaga	agggatttca	240
gtgtgggacc	cagggctctgt	tcttcacagt	aggaggtgga	agggatgact	aattttcttta	300
t						301

<210> 239

<211> 239

<212> DNA

<213> Homo sapien

<400> 239

ataagcagct	agggaattct	ttatttagta	atgtcctaac	ataaaagttc	acataactgc	60
ttctgtcaaa	ccatgatact	gagctttgtg	acaaccacga	aataactaag	agaaggcaaa	120
cataatacct	tagagatcaa	gaaacattta	cacagttcaa	ctgtttaaaa	atagctcaac	180
attcagccag	tgagtagagt	gtgaatgcc	gcatacacag	tatacaggtc	cttcaggga	239

<210> 240

<211> 300
 <212> DNA
 <213> Homo sapien

<400> 240
 ggtcctaattg aagcagcagc ttccacattt taacgcagggt ttacgggtgat actgtcctttt 60
 gggatctgcc ctccagtggg acctttttaag gaagaagtgg gcccaagcta agttccacat 120
 gctgggtgag ccagatgact tctgttccct ggtcactttc ttcaatgggg cgaatggggg 180
 ctgccagggtt tttaaaatca tgcttcactc tgaagcacac ggtcacttca ccctcctcac 240
 gctgtgggtg tactttgatg aaaataccce ctttgttggc ctttctgaag ctataatgtc 300

<210> 241
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 241
 gaggtctggt gctgaggtct ctgggctagg aagaggaggt ctgtggagct ggaagccaga 60
 cctcttttggg ggaaactcca gcagctatgt tgggtgtctct gagggaatgc aacaaggctg 120
 ctctcccatg tattggaaaa ctgcaaaactg gactcaactg gaaggaagtg ctgctgccag 180
 tgtgaagaac cagcctgagg tgacagaaac ggaagcaaac aggaacagcc agtcttttct 240
 tcctctctct gtcatacggg ctctctcaag catcctttgt tgtcaggggc ctaaaaggga 300
 g 301

<210> 242
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 242
 ccgaggtcct gggatgcaac caatcactct gtttcacgtg acttttatca ccatacaatt 60
 tgtggcattt cctcattttc tacattgtag aatcaagagt gtaataaat gtatatcgat 120
 gtcttcaaga atatatcatt cctttttcac tagaaccat tcaaatata agtcaagaat 180
 cttaatatca acaaatatat caagcaaact ggaaggcaga ataactacca taatttagta 240
 taagtaccca aagttttata aatcaaaaagc cctaatagata accattttta gaattcaatc 300
 a 301

<210> 243
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 243
 aggtaagtcc cagtttgaag ctcaaaagat ctgggtatgag cataggctca tcgacgacat 60
 ggtggcccaa gctatgaaat cagagggagg cttcatctgg gcctgtaaaa actatgatgg 120
 tgacgtgcag tcggactctg tggcccaagg gtatggctct ctggcatga tgaccagcgt 180
 gctggtttgt ccagatggca agacagtaga agcagaggct gccacggga ctgtaacccg 240
 tcactaccgc atgttccaga aaggacagga gacgtccacc aatcccattg cttccatttt 300
 t 301

<210> 244
 <211> 300
 <212> DNA
 <213> Homo sapien

<400> 244
 gctggtttgc aagaatgaaa tgaatgattc tacagctagg acttaacctt gaaatggaaa 60
 gtcattgcaat cccatttgca ggatctgtct gtgcacatgc ctctgtagag agcagcattc 120

ccagggacct	tggaaacagt	tgacactgta	agggtgcttg	tccccaagac	acatcctaaa	180
agggtgttgta	atgggtgaaaa	cgtcttccct	ctttattgcc	ccttcttatt	tatgtgaaca	240
actgtttgtc	ttttgtgtat	cttttttaaa	ctgtaaagtt	caattgtgaa	aatgaatatc	300

<210> 245

<211> 301

<212> DNA

<213> Homo sapien

<400> 245

gtctgagtat	ttaaaatggt	attgaaatta	tccccaacca	atgttagaaa	agaaagaggt	60
tatatactta	gataaaaaat	gaggtgaatt	actatccatt	gaaatcatgc	tcttagaatt	120
aaggccagga	gatattgtca	ttaatgtara	cttcaggaca	ctagagtata	gcagccctat	180
gttttcaaag	agcagagatg	caattaaata	ttgttttagca	tcaaaaaggc	cactcaatac	240
agctaataaa	atgaaagacc	taattttctaa	agcaattcct	tataatttac	aaagttttta	300
g						301

<210> 246

<211> 301

<212> DNA

<213> Homo sapien

<400> 246

ggtctgtcct	acaatgcctg	cttcttgaaa	gaagtcggca	ctttctagaa	tagctaaata	60
acctgggctt	atttttaaaga	actatttgta	gctcagattg	gttttcctat	ggctaaaata	120
agtgtctctt	gtgaaaatta	aataaaacag	ttaattcaaa	gccttgatat	atgttaccac	180
taacaatcat	actaaatata	ttttgaagta	caaagtttga	catgctctaa	agtgacaacc	240
caaagtgtgc	ttacaaaaca	cgttcctaac	aaggtatgct	ttacactacc	aatgcagaaa	300
c						301

<210> 247

<211> 301

<212> DNA

<213> Homo sapien

<400> 247

aggtcctttg	gcagggctca	tggatcagag	ctcaaactgg	agggaaaggc	atttcgggta	60
gcctaagagg	gcgactggcg	gcagcacaac	caagggaaggc	aagggttggtt	ccccacgct	120
gtgtcctgtg	ttcagggtgcg	acacacaatc	ctcatgggaa	caggatcacc	catgcgctgc	180
ccttgatgat	caagggttggg	gcttaagtgg	attaagggag	gcaagttctg	ggttccttgc	240
cttttcaaac	catgaagtca	ggctctgtat	ccctcctttt	cctaactgat	attctaacta	300
a						301

<210> 248

<211> 301

<212> DNA

<213> Homo sapien

<400> 248

aggtccttgg	agatgccatt	tcagccgaag	gactcttctw	ttcggaagta	caccctcact	60
attaggaaga	ttcttagggg	taatttttct	gaggaaggag	aactagccaa	cttaagaatt	120
acaggaagaa	agtggtttgg	aagacagcca	aagaaataaa	agcagattaa	attgtatcag	180
gtacattcca	gcctgttggc	aactccataa	aaacatttca	gattttaatc	ccgaatttag	240
ctaattgagac	tggatttttg	ttttttatgt	tgtgtgtcgc	agagctaaaa	actcagttcc	300
c						301

<210> 249

<211> 301

<212> DNA

<213> Homo sapien

<400> 249

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gtccagagga agcacctggg gctgaactag gcttgccctg ctgtgaactt gcacttggag      60
ccctgacgct gctgttctcc ccgaaaaacc cgaccgacct ccgcgatctc cgccccgcc      120
ccagggagac acagcagtga ctcagagctg gtgcgacact gtgcctccct cctcaccgcc      180
catcgtaatg aattattttg aaaattaatt ccaccatcct ttcagattct ggatggaaag      240
actgaatctt tgactcagaa ttgtttgctg aaaagaatga tgtgactttc ttagtcattt      300
a                                                                                   301

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<210> 250

<211> 301

<212> DNA

<213> Homo sapien

<400> 250

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ggtctgtgac aaggacttgc aggctgtggg aggcaagtga cccttaacac tacacttctc      60
cttatcttta ttggcttgat aaacataatt atttctaaca ctagcttatt tccagttgcc      120
cataagcaca tcagtacttt tctctggctg gaatagtaaa ctaaagtatg gtacatctac      180
ctaaaagact actatgtgga ataatacata ctaatgaagt attacatgat ttaaagacta      240
caataaaacc aaacatgctt ataacattaa gaaaaacaat aaagatacat gattgaaacc      300
a                                                                                   301

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<210> 251

<211> 301

<212> DNA

<213> Homo sapien

<400> 251

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gccgaggtcc tacatttggc ccagtttccc cctgcatect ctccaggggc cctgctcat      60
agacaacctc atagagcata ggagaactgg ttgccctggg ggcaggggga ctgtctggat      120
ggcaggggtc ctcaaaaatg ccactgtcac tgccaggaaa tgcttctgag cagtacacct      180
cattgggata aatgaaaagc ttcaagaaat cttcaggctc actctcttga aggcccgga      240
cctctggagg ggggcagtg aatcccagct ccaggacgga tcctgtcgaa aagatacct      300
c                                                                                   301

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<210> 252

<211> 301

<212> DNA

<213> Homo sapien

<400> 252

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gcaaccaatc actctgtttc acgtgacttt tatcaccata caatttgtgg catttctca      60
ttttctacat tgtagaatca agagtgtaaa taaatgtata tcgatgtctt caagaatata      120
tcattccttt ttcactagga acccattcaa aatataagtc aagaatctta atatcaacaa      180
atatatcaag caaactggaa ggcagaataa ctaccataat ttagtataag tacccaaagt      240
tttataaatc aaaagcccta atgataacca tttttagaat tcaatcatca ctgtagaatc      300
a                                                                                   301

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<210> 253

<211> 301

<212> DNA

<213> Homo sapien

<400> 253

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ttccctaaga agatgttatt ttgttgggtt ttgttcccc tccatctcga ttctcgtacc      60
caactaaaaa aaaaaaataa agaaaaaatg tgctgcgttc tgaaaaataa ctccttagct      120

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tggtctgatt	gttttcagac	cttaaaatat	aaacttgttt	cacaagcttt	aatccatgtg	180
gatttttttt	cttagagaac	cacaaaacat	aaaaggagca	agtcggactg	aatacctgtt	240
tccatagtgc	ccacagggtg	ttcctcacat	tttctccata	ggaaaatgct	ttttcccaag	300
g						301

<210> 254
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 254						
cgctgcgcct	ttcccttggg	ggagggggcaa	ggccagaggg	ggtccaagtg	cagcacgagg	60
aacttgacca	attcccttga	agcgggtggg	ttaaaccctg	taaatgggaa	caaaatcccc	120
ccaaatctct	tcatcttacc	ctggtggact	cctgactgta	gaattttttg	gttgaaacaa	180
gaaaaaaata	aagcttttga	cttttcaagg	ttgcttaaca	ggtactgaaa	gactggcctc	240
acttaaaactg	agccaggaaa	agctgcagat	ttattaatgg	gtgtgttagt	gtgcagtgcc	300
t						301

<210> 255
 <211> 302
 <212> DNA
 <213> Homo sapien

<400> 255						
agcttttttt	tttttttttt	tttttttttt	ttcattaaaa	aatagtgtct	tttattataa	60
attactgaaa	tgtttctttt	ctgaatataa	atataaatat	gtgcaaagtt	tgacttggat	120
tgggattttg	ttgagttctt	caagcatctc	ctaataccct	caagggcctg	agtagggggg	180
aggaaaaagg	actggaggtg	gaatctttat	aaaaaacaag	agtgattgag	gcagattgta	240
aacattatta	aaaaacaaga	aacaaacaaa	aaaatagaga	aaaaaaccac	cccaacacac	300
aa						302

<210> 256
 <211> 301
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(301)
 <223> n = A,T,C or G

<400> 256						
gttccagaaa	acattgaagg	tggcttccca	aagtctaact	agggataccc	cctctagcct	60
aggaccctcc	tccccacacc	tcaatccacc	aaaccatcca	taatgcaccc	agataggccc	120
acccccaaaa	gcctggacac	cttgagcaca	cagttatgac	caggacagac	tcatctctat	180
aggcaaatag	ctgctggcaa	actggcatta	cctggtttgt	ggggatgggg	gggcaagtgt	240
gtggcctctc	ggcctgggta	gcaagaacat	tcagggtagg	cctaagttan	tcgtgttagt	300
t						301

<210> 257
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 257						
gttggtggagg	aactctggct	tgctcattaa	gtcctactga	ttttcactat	cccctgaatt	60
tccccactta	tttttgtctt	tcaactatcg	aggccttaga	agaggtctac	ctgcctccag	120
tcttacctag	tccagtctac	cccctggagt	tagaatggcc	atcctgaagt	gaaaagtaat	180

gtcacattac tcccttcagt gattttcttgt agaagtgcc aatccctgaat gccaccaaga 240
 tcttaattctt cacatcttta atcttatctc ttgtactect ctttacaccg gagaaggctc 300
 c 301

<210> 258
 <211> 301
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (301)
 <223> n = A,T,C or G

<400> 258
 cagcagtagt agatgccgta tgccagcacg cccagcactc ccaggatcag caccagcacc 60
 aggggcccag ccaccaggcg cagaagcaag ataaacagta ggctcaagac cagagccacc 120
 cccaggggcaa caagaatcca ataccaggac tgggcaaaat cttcaaagat ctttaactctg 180
 atgtctcggg cattgaggct gtcaataana cgctgatccc ctgctgtatg gtggtgtcat 240
 tggatgatccc tgggagcgcc ggtggagtaa cgttggtcca tggaagcag cgcccacaac 300
 t 301

<210> 259
 <211> 301
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (301)
 <223> n = A,T,C or G

<400> 259
 tcatatatgc aaacaaatgc agactangcc tcaggcagag actaaaggac atctcttggg 60
 gtgtcctgaa gtgatttgga cccctgaggg cagacaccta agtaggaatc ccagtgggaa 120
 gcaaagccat aaggaagccc aggattcctt gtgatcagga agtgggccag gaaggtctgt 180
 tccagctcac atctcatctg catgcagcac ggaccggatg cgcccactgg gtcttggctt 240
 ccctcccatc ttctcaagca gtgtccttgt tgagccattt gcaccccttg ctccagggtg 300
 c 301

<210> 260
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 260
 ttttttttct ccctaaggaa aaagaaggaa caagtctcat aaaaccaa at aagcaatggt 60
 aaggtgtctt aacttgaaaa agattaggag tcaactgggtt acaagttata attgaatgaa 120
 agaactgtaa cagccacagt tggccatttc atgccaatgg cagcaaacia caggattaac 180
 tagggcaaaa taaataagtg tgtggaagcc ctgataagtg ctttaataaac agactgattc 240
 actgagacat cagtacctgc cggggcggcc gctcgagccc aattctgcag atatccatca 300
 c 301

<210> 261
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 261

aaatattcga	gcaaatectg	taactaatgt	gtctccataa	aaggctttga	actcagtga	60
tctgcttcca	tccacgattc	tagcaatgac	ctctcggaca	tcaaagctcc	tcttaaggtt	120
agcaccaact	attccataca	attcatcagc	aggaaataaa	ggctcttcag	aagggttcaat	180
ggtgacatcc	aattttctct	gataatttag	attcctcaca	accttcctag	ttaagtgaag	240
ggcatgatga	tcatccaaag	cccagtggtc	acttactcca	gactttctgc	aatgaagatc	300
a						301

<210> 262

<211> 301

<212> DNA

<213> Homo sapien

<400> 262

gaggagagcc	tgttacagca	tttgtaagca	cagaatactc	caggagtatt	tgtaattgtc	60
tgtgagcttc	ttgccgcaag	tctctcagaa	atttaaaaag	atgcaaattc	ctgagtcacc	120
cctagacttc	ctaaaccaga	tcctctgggg	ctggaacctg	gcactctgca	tttgtaatga	180
gggctttctg	gtgcacacct	aattttgtgc	atctttgccc	taaatcctgg	attagtcccc	240
catcattacc	cccacattat	aatgggatag	attcagagca	gatactctcc	agcaaagaat	300
c						301

<210> 263

<211> 301

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (301)

<223> n = A,T,C or G

<400> 263

tttagcttgt	ggtaaattgac	tcacaaaact	gatttttaaaa	tcaagttaat	gtgaattttg	60
aaaattacta	cttaattcta	attcacaata	acaatggcat	taagggtttga	cttgagttgg	120
ttcttagtat	tatttatggt	aaataggctc	ttaccacttg	caaataactg	gccacatcat	180
taatgactga	cttcccagta	aggctctcta	aggggtaagt	angaggatcc	acaggatttg	240
agatgctaag	gccccagaga	tcgtttgatc	caaccctctt	attttcagag	gggaaaatgg	300
g						301

<210> 264

<211> 301

<212> DNA

<213> Homo sapien

<400> 264

aaagacgtta	aaccactcta	ctaccacttg	tggaactctc	aaagggtaaa	tgacaaaacc	60
aatgaatgac	tctaaaaaca	atatttacat	ttaatggttt	gtagacaata	aaaaaacaag	120
gtggatagat	ctagaattgt	aacattttta	gaaaaccata	scatttgaca	gatgagaaag	180
ctcaattata	gatgcaaagt	tataactaaa	ctactatagt	agtaaagaaa	tacatttcac	240
acccttcata	taaattcact	atcttggctt	gaggcactcc	ataaaatgta	tcacgtgcat	300
a						301

<210> 265

<211> 301

<212> DNA

<213> Homo sapien

<400> 265

tgcccaagtt	atgtgtaagt	gtatccgcac	ccagaggtaa	aactacactg	tcattctttgt	60
cttcttgtga	cgcagtattt	cttctctggg	gagaagccgg	gaagtcttct	cctgggtcta	120
catattcttg	gaagtctcta	atcaactttt	gttccatttg	tttcatttct	tcaggaggga	180
ttttcagttt	gtcaacatgt	tctctaacaa	cacttgccca	tttctgtaaa	gaatccaaag	240
cagtccaagg	ctttgacatg	tcaacaacca	gcataactag	agtatccttc	agagatacgg	300
c						301

<210> 266

<211> 301

<212> DNA

<213> Homo sapien

<400> 266

taccgtctgc	cttctctccc	atccaggcca	tctgcgaatc	tacatgggtc	ctcctattcg	60
acaccagatc	actctttcct	ctaccacacg	gcttgctatg	agcaagagac	acaacctcct	120
ctcttctgtg	ttccagcttc	ttttcctggt	cttcccaccc	cttaagtctt	attcctgggg	180
atagagacac	caatacccat	aacctctctc	ctaagcctcc	ttataacca	gggtgcacag	240
cacagactcc	tgacaactgg	taaggccaat	gaactgggag	ctcacagctg	gctgtgctg	300
a						301

<210> 267

<211> 301

<212> DNA

<213> Homo sapien

<400> 267

aaagagcaca	ggccagctca	gcctgccctg	gccatctaga	ctcagcctgg	ctccatgggg	60
gttctcagtg	ctgagtcct	ccaggaaaag	ctcacctaga	ccttctgagg	ctgaatcttc	120
atcctcacag	gcagcttctg	agagcctgat	attcctagcc	ttgatgggtc	ggagtaaagc	180
ctcattctga	ttcctctcct	tcttttcttt	caagtgggct	ttcctcacat	ccctctgttc	240
aattcgettc	agcttgtctg	ctttagccct	catttccaga	agcttcttct	ctttggcatc	300
t						301

<210> 268

<211> 301

<212> DNA

<213> Homo sapien

<400> 268

aatgtctcac	tcaactactt	cccagcctac	cgtggcctaa	ttctgggagt	tttcttctta	60
gatcttggga	gagctgggtc	ttctaaggag	aaggaggaag	gacagatgta	actttggatc	120
tcgaagagga	agtctaattg	aagtaattag	tcaacggtcc	ttgttttagac	tcttgggaata	180
tgctgggtgg	ctcagtgagc	ccttttggag	aaagcaagta	ttattcttaa	ggagtaacca	240
cttcccattg	ttctactttc	taccatcatc	aattgtatat	tatgtattct	ttggagaact	300
a						301

<210> 269

<211> 301

<212> DNA

<213> Homo sapien

<400> 269

taacaatata	cactagctat	ctttttaact	gtccatcatt	agcaccaatg	aagattcaat	60
aaaattacct	ttattcacac	atctcaaaac	aattctgcaa	attcttagtg	aagttaact	120
atagtcacag	accttaaata	ttcacattgt	tttctatgtc	tactgaaaat	aagttcacta	180
cttttctgga	tattctttac	aaaatcttat	taaaattcct	ggtattatca	cccccaatta	240
tacagtagca	caaccacctt	atgtagtttt	tacatgatag	ctctgtagaa	gtttcacatc	300
t						301

<210> 270
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 270
 cattgaagag cttttgcgaa acatcagaac acaagtgctt ataaaattaa ttaagcctta 60
 cacaagaata catattcctt ttattttctaa ggagttaaac atagatgtag ctgatgtgga 120
 gagcttgctg gtgcagtgc aattggataa cactattcat ggccgaattg atcaagtcaa 180
 ccaactcctt gaactggatc atcagaagaa ggggtggtgca cgatatactg cactagataa 240
 tggaccaacc aactaaattc tctcaccagg ctgtatcagt aaactgggctt aacagaaaac 300
 a 301

<210> 271
 <211> 301
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(301)
 <223> n = A,T,C or G

<400> 271
 aaaagggttct cataagatta acaattttaa taaatatttg atagaacatt cttttctcatt 60
 tttatagctc atcttttaggg ttgatattca gttcatgctt cccttgctgt tcttgatcca 120
 gaattgcaat cacttcatca gcctgtattc gctccaattc tctataaagt ggggtccaagg 180
 tgaaccacag agccacagca cacctctttc ccttggtgac tgccttcacc ccatganggt 240
 tctctectcc agatganaac tgatcatgcy cccacatttt ggggtttata gaagcagtc 300
 c 301

<210> 272
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 272
 taaattgcta agccacagat aacaccaatc aaatggaaca aatcactgtc ttcaaagtgc 60
 ttatcagaaa accaaatgag cctggaatct tcataatacc taaacatgcc gtatttagga 120
 tccaataatt ccctcatgat gagcaagaaa aattctttgc gcacccctcc tgcattcaca 180
 gcattcttct caacaaatat aaccttgagt ggcttcttgc aatctatgtt ctttgttttc 240
 ctaaggactt ccattgcate tctacaata ttttctctac gcaccactag aattaagcag 300
 g 301

<210> 273
 <211> 301
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(301)
 <223> n = A,T,C or G

<400> 273
 acatgtgtgt atgtgtatct ttgggaaan aanaagacat cttgtttayt atttttttgg 60
 agagangctg ggacatggat aatcacwtaa tttgctayta tyactttaat ctgactygaa 120

```

gaaccgtcta aaaataaaat ttaccatgtc dtatattcct tatagtatgc ttatttcacc 180
ttytttctgt ccagagagag tatcagtgac ananatttma ggggtgaamac atgmatgtgt 240
gggacttnty ttacngagm accctgcccg sgcgcctcg makcngantt ccgcsananc 300
t 301

```

<210> 274

<211> 301

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(301)

<223> n = A,T,C or G

<400> 274

```

cttatatact ctttctcaga ggcaaaagag gagatgggta atgtagacaa ttctttgagg 60
aacagtaaat gattattaga gagaangaat ggaccaagga gacagaaatt aacttgtaaa 120
tgattctctt tggaatctga atgagatcaa gaggccagct ttagcttggt gaaaagtcca 180
tctaggtatg gttgcattct cgtcttcttt tctgcagtag ataatgaggt aaccgaaggc 240
aattgtgctt cttttgataa gaagctttct tggtcatatc aggaaattcc aganaaagtc 300
c 301

```

<210> 275

<211> 301

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(301)

<223> n = A,T,C or G

<400> 275

```

tcggtgtcag cagcacgtgg cattgaacat tgcaatgtgg agcccaaacc acagaaaatg 60
gggtgaaatt ggccaacttt ctattaactt atgttggtgcaa ttttgccacc aacagtaagc 120
tggtcccttct aataaaagaa aattgaaagg tttctcacta aacggaatta agtagtggag 180
tcaagagact cccaggcctc agcgtacctg cccggggcggc cgctcgaagc cgaattctgc 240
agatatccat cacactggcg gncgctcgan catgcatcta gaaggnccaa ttcgccttat 300
a 301

```

<210> 276

<211> 301

<212> DNA

<213> Homo sapien

<400> 276

```

tgtacacata ctcaataaat aaatgactgc attgtgggtat tattactata ctgattatat 60
ttatcatgtg acttctaatt agaaaatgta tccaaaagca aaacagcaga tatacaaaat 120
taaagagaca gaagatagac attaacagat aaggcaactt atacattgag aatccaaatc 180
caatacattt aaacatttgg gaaatgaggg ggacaaatgg aagccagatc aaatttgtgt 240
aaaactattc agtatgtttc ccttgcttca tgtctgagaa ggctctcctt caatggggat 300
g 301

```

<210> 277

<211> 301

<212> DNA

<213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(301)
 <223> n = A,T,C or G

<400> 277
 tttgttgatg tcagtatttt attacttgcg ttatgagtgc tcacctggga aattctaaag 60
 atacagagga cttggaggaa gcagagcaac tgaatttaat ttaaaagaag gaaaacattg 120
 gaatcatggc actcctgata ctttcccaaa tcaacactct caatgcccc aacctcgtcct 180
 caccatagtg gggagactaa agtggccacg gatttgcctt angtgtgcag tgcgttctga 240
 gttcncgtgc gattacatct gaccagtctc ctttttccga agtcctccg ttcaatcttg 300
 c 301

<210> 278
 <211> 301
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(301)
 <223> n = A,T,C or G

<400> 278
 taccactaca ctccagcctg ggcaacagag caagacctgt ctcaaagcat aaaatggaat 60
 aacatatcaa atgaaacagg gaaaatgaag ctgacaattt atggaagcca gggcttgatca 120
 cagtctctac tggtattatg cattacctgg gaatttatat aagcccttaa taataatgcc 180
 aatgaacatc tcatgtgtgc tcacaatgtt ctggcactat tataagtgtc tcacagggtt 240
 tatgtgttct tcgtaacttt atggantagg tactcggccg cgaacacgct aagccgaatt 300
 c 301

<210> 279
 <211> 301
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(301)
 <223> n = A,T,C or G

<400> 279
 aaagcaggaa tgacaaagct tgcttttctg gtatgttcta ggtgtattgt gacttttact 60
 gttatattaa ttgccaatat aagtaaatat agattatata tgtatagtgt ttcacaaagc 120
 ttagaccttt accttccagc caccacacag tgcttgatat ttcagagtca gtcattgggt 180
 atacatgtgt agttccaaag cacataagct agaanaanaa atatttctag ggagcactac 240
 catctgtttt cacatgaaat gccacacaca tagaactcca acatcaattt cattgcacag 300
 a 301

<210> 280
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 280
 ggtactggag ttttccctccc ctgtgaaaac gtaactactg ttgggagtga attgaggatg 60
 tagaaagggtg gtggaaccaa attgtgggtca atggaaatag gagaatatgg ttctcactct 120

tgagaaaaaa	acctaagatt	agcccaggtg	gttgccctgta	acttcagttt	ttctgcctgg	180
gtttgatata	gttttagggt	gggggttagat	taagatctaa	attacatcag	gacaaagaga	240
cagactatta	actccacagt	taattaagga	ggtatgttcc	atgtttattt	gttaaagcag	300
t						301

<210> 281
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 281						
aggtacaaga	aggggaatgg	gaaagagctg	ctgctgtggc	attgttcaac	ttggatattc	60
gccgagcaat	ccaaatcctg	aatgaagggg	catcttctga	aaaaggagat	ctgaatctca	120
atgtggtagc	aatggcttta	tcgggttata	cggatgagaa	gaactccctt	tggagagaaa	180
tgtgtagcac	actgcgatta	cagctaaata	acccgtattt	gtgtgtcatg	tttgcatttc	240
tgacaagtga	aacaggatct	tacgatggag	ttttgtatga	aaacaaagtt	gcagtacctc	300
g						301

<210> 282
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 282						
caggtactac	agaattaaaa	tactgacaag	caagtagttt	cttggcgtgc	acgaattgca	60
tccagaaccc	aaaaattaag	aaattcaaaa	agacattttg	tgggcacctg	ctagcacaga	120
agcgagaag	caaagcccag	gcagaacccat	gctaaccctta	cagctcagcc	tgacacagaag	180
cgcagaagca	aagcccaggc	agaaccatgc	taaccttaca	gctcagcctg	cacagaagcg	240
cagaagcaaa	gcccgaggcag	aacatgctaa	ccttacagct	cagcctgcac	agaagcacag	300
a						301

<210> 283
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 283						
atctgtatac	ggcagacaaa	ctttatarag	tgtagagagg	tgagcgaaag	gatgcaaaag	60
cactttgagg	gctttataat	aatatgctgc	ttgaaaaaaa	aaatgtgtag	ttgatactca	120
gtgcatctcc	agacatagta	aggggttgct	ctgaccaatc	aggtgatcat	tttttctatc	180
acttcccagg	ttttatgcaa	aaattttggt	aaattctata	atggtgatat	gcacttttta	240
ggaaacatat	acatttttaa	aaatctattt	tatgtaagaa	ctgacagacg	aatttgcttt	300
g						301

<210> 284
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 284						
caggtacaaa	acgctattaa	gtggcttaga	atttgaacat	ttgtggtctt	tatttacttt	60
gcttcgtgtg	tgggcaaagc	aacatcttcc	ctaaatatat	attaccaaga	aaagcaagaa	120
gcagattagg	tttttgacaa	aacaaacagg	ccaaaagggg	gctgacctgg	agcagagcat	180
ggtgagaggc	aaggcatgag	agggcaagtt	tgttgtggac	agatctgtgc	ctactttatt	240
actggagtaa	aagaaaacaa	agttcattga	tgtcgaagga	tatatacagt	gttagaaatt	300
a						301

<210> 285

<211> 301
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(301)
 <223> n = A,T,C or G

<400> 285
 acatcaccat gatcggtacc cccacccatt atacgttgta tgtttacata aatactcttc 60
 aatgatcatt agtgttttaa aaaaaatact gaaaactcct tctgcatccc aatctctaac 120
 caggaaagca aatgctattt acagacctgc aagccctccc tcaaacnaaa ctatttctgg 180
 attaaatatg tctgacttct tttgaggtca cagcactagg caaatgctat ttacgatctg 240
 caaaagctgt ttgaagagtc aaagccccc tgtgaacacg atttctggac cctgtaacag 300
 t 301

<210> 286
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 286
 taccactgca ttccagcctg ggtgacagag tgagactcgg tctccaaaaa aaactttgct 60
 tgtatattat ttttgctta cagtggatca ttctagtagg aaaggacagt aagatttttt 120
 atcaaaatgt gtcatgccag taagagatgt tatattcttt tctcatttct tccccacca 180
 aaaataagct accatatagc ttataagtct caaatttttg ccttttacta aaatgtgatt 240
 gtttctgttc atttgttatg cttcatcacc tatatttaggc aaattccatt ttttcccttg 300
 t 301

<210> 287
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 287
 tacagatctg ggaactaaat attaaaaatg agtgtggctg gatatatgga gaatgttggg 60
 ccagaagga acgtagagat cagatattac aacagctttg ttttgagggt tagaaatatg 120
 aaatgatttg gttatgaacg cacagttagg gcagcagggc cagaatcctg accctctgcc 180
 cegtgggtat ctctcccca gcttggtgctg ctcagtgtat cacagtattc cattttgttt 240
 gttgcatgtc ttgtgaagcc atcaagattt tctcgtctgt tttcctctca ttggtaatgc 300
 t 301

<210> 288
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 288
 gtacacctaa ctgcaaggac agctgaggaa tgtaatgggc agccgctttt aaagaagtag 60
 agtcaatagg aagacaaatt ccagttccag ctcagtctgg gtatctgcaa agctgcaaaa 120
 gatcttttaa gacaatttca agagaatatt tccttaaagt tggcaatttg gagatcatac 180
 aaaagcatct gcttttgtga tttaatttag ctcactctgg cactggaaga atccaaacag 240
 tctgccttaa ttttggatga atgcatgatg gaaattcaat aatttagaaa gttaaaaaaa 300
 a 301

<210> 289
 <211> 301

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(301)

<223> n = A,T,C or G

<400> 289

```

ggtacactgt ttccatgtta tgtttctaca cattgctacc tcagtgtccc tggaaactta      60
gcttttgatg tctccaagta gtccaccttc atttaactct ttgaaactgt atcatctttg      120
ccaagtaaga gtggtggcct atttcagctg ctttgacaaa atgactggct cctgacttaa      180
cgttctataa atgaatgtgc tgaagcaaag tgcccatggt ggcggcgaan aagagaaaaga      240
tgtgttttgt tttggactct ctgtgggtccc ttccaatgct gtgggtttcc aaccagnnga      300
a                                                                                   301

```

<210> 290

<211> 301

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(301)

<223> n = A,T,C or G

<400> 290

```

aactgagct cttcttgata aatatacaga atgcttggca tatacaagat tctatactac      60
tgactgatct gttcatttct ctcacagctc ttaccccaa aagcttttcc accctaagtg      120
ttctgacctc cttttctaata cacagtaggg atagaggcag anccacctac aatgaacatg      180
gagttctatc aagaggcaga aacagcacag aatcccagtt ttaccattcg ctagcagtgc      240
tgccttgaac aaaaacattt ctccatgtct cattttcttc atgcctcaag taacagtgag      300
a                                                                                   301

```

<210> 291

<211> 301

<212> DNA

<213> Homo sapien

<400> 291

```

caggtaccaa tttcttctat cctagaaaca tttcatttta tgttgttgaa acataacaac      60
tatatcagct agattttttt tctatgcttt acctgctatg gaaaatttga cacattctgc      120
tttactcttt tgtttatagg tgaatcacia aatgtatttt tatgtattct gtagttcaat      180
agccatggct gtttacttca ttttaatttt ttagcataaa gacattatga aaaggcctaa      240
acatgagctt cacttcccca ctaactaatt agcatctggt atttcttaac cgtaatgcct      300
a                                                                                   301

```

<210> 292

<211> 301

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(301)

<223> n = A,T,C or G

<400> 292

```

accttttagt agtaatgtct aataataaat aagaaatcaa ttttataagg tccatatagc      60
tgtattaaat aatttttaag tttaaaagat aaaataccat catttttaat gttggtattc      120
aaaaccaaag natataaccg aaaggaaaaa cagatgagac ataaaatgat ttgcnagatg      180
ggaaatatag tasttyatga atgttnatta aattccagtt ataatagtgg ctacacactc      240
tcactacaca cacagacccc acagtcctat atgccacaaa cacatttcca taacttgaaa      300
a                                                                                   301

```

```

<210> 293
<211> 301
<212> DNA
<213> Homo sapien

```

```

<400> 293
ggtaccaagt gctggtgccg gcttgttacc tgttctcact gaaaagtctg gctaattgctc      60
ttgtgtagtc acttctgatt ctgacaatca atcaatcaat ggcctagagc actgactgtt      120
aacacaaacg tcaactagcaa agtagcaaca gctttaagtc taaatacaaa gctgttctgt      180
gtgagaattt tttaaaaggc tacttgtata ataacccttg tcatttttaa tgtacctcgg      240
ccgcgaccac gctaagccga attctgcaga tatccatcac actggcgggc gctcgagcat      300
g                                                                                   301

```

```

<210> 294
<211> 301
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(301)
<223> n = A,T,C or G

```

```

<400> 294
tgaccataaa caatatacac tagctatctt ttttaactgtc catcattagc accaatgaag      60
attcaataaaa attaccttta ttcacacatc tcaaaaacaat tctgcaaatt cttagtgaag      120
tttaactata gtcacaganc ttaaatattc acattgtttt ctatgtctac tgaaaataag      180
ttcactactt ttctgggata ttctttacaa aatcttatta aaattcctgg tattatcacc      240
cccaattata cagtagcaca accaccttat gtagttttta catgatagct ctgtagaggt      300
t                                                                                   301

```

```

<210> 295
<211> 305
<212> DNA
<213> Homo sapien

```

```

<400> 295
gtactctttc tctcccctcc tctgaattta attctttcaa cttgcaattt gcaaggatta      60
cacatttcac tgtgatgtat attgtgttgc aaaaaaaaaa gtgtctttgt ttaaaattac      120
ttggtttgtg aatccatctt gctttttccc cattggaact agtcattaac ccatctctga      180
actggtagaa aaacrtctga agagctagtc tatcagcatc tgacagggtga attggatggg      240
tctcagaacc atttcacca gacagcctgt ttctatcctg ttaataaat tagtttgggt      300
tctct                                                                                   305

```

```

<210> 296
<211> 301
<212> DNA
<213> Homo sapien

```

```

<400> 296
agggtactatg ggaagctgct aaaataatat ttgatagtaa aagtatgtaa tgtgctatct      60

```

```

cacctagtag taaactaaaa ataaactgaa acttttatgga atctgaagtt attttccttg      120
attaataaga attaataaac caatatgagg aaacatgaaa ccatgcaatc tactatcaac      180
tttgaaaaag tgattgaacg aaccacttag ctttcagatg atgaacactg ataagtcatt      240
tgtcattact ataaatttta aaatctgtta ataagatggc ctatagggag gaaaaagggg      300
c                                                                    301

```

<210> 297

<211> 300

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(300)

<223> n = A,T,C or G

<400> 297

```

actgagtttt aactggacgc caagcaggca aggctggaag gttttgctct ctttgtgcta      60
aaggttttga aaaccttgaa ggagaatcat ttgacaaga agtacttaag agtctagaga      120
acaaagangt gaaccagctg aaagctctcg ggggaanctt acatgtgttg ttaggcctgt      180
tccatcattg ggagtgcact ggccatccct caaaatttgt ctgggctggc ctgagtgggc      240
accgcacctc ggccgcgacc acgctaagcc gaattctgca gatatccatc aactggcggg      300

```

<210> 298

<211> 301

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(301)

<223> n = A,T,C or G

<400> 298

```

tatggggttt gtcacccaaa agctgatgct gagaaaggcc tccctggggc ccctcccgcg      60
ggcatctgag agacctgggtg ttccagtgtt tctggaaatg ggtcccagtg ccgccggctg      120
tgaagctctc agatcaatca cgggaagggc ctggcggtgg tgccacactg gaaccaccct      180
gtcctgtctg ttacatttc actaycaggt tttctctggg cattacnatt tgttccccta      240
caacagtgcac ctgtgcattc tgctgtggcc tgctgtgtct gcagggtggct ctgagcgagg      300
t                                                                    301

```

<210> 299

<211> 301

<212> DNA

<213> Homo sapien

<400> 299

```

gttttgagac ggagtttcac tcttgttgcc cagactggac tgcaatggca gggctctctgc      60
tcaactgcacc ctctgcctcc caggttcgag caattctcct gcctcagcct cccaggtagc      120
tgggattgca ggctcacgcc accataccca gctaattttt ttgtattttt agtagagacg      180
gagtttcgcc atgttgcca gctgggtctca aactcctgac ctcaagcgac ctgcctgcct      240
cggcctccca aagtgtctga attataggca tgagtcaaca cgcccagcct aaagatatatt      300
t                                                                    301

```

<210> 300

<211> 301

<212> DNA

<213> Homo sapien

<400> 300
 attcagttttt atttgcctgcc ccagttatctg taaccaggag tgccacaaaa tcttgccaga 60
 tatgtcccac acccactggg aaaggctccc acctggctac ttcctctatc agctgggtca 120
 gctgcattcc acaaggttct cagcctaata agtttcaacta cctgccagtc tcaaaactta 180
 gtaaagcaag accatgacat tccccacgg aaatcagagt ttgccccacc gtcttggttac 240
 tataaagcct gcctctaaca gtccttgctt cttcacacca atccccgagcg catcccccat 300
 g 301

<210> 301
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 301
 ttaaattttt gagaggataa aaaggacaaa taatctagaa atgtgtcttc ttcagttctgc 60
 agaggacccc aggtctccaa gcaaccacat ggtcaagggtc atgaataatt aaaagttggt 120
 gggaactcac aaagaccctc agagctgaga caccacacac agtgggagct cacaaagacc 180
 ctcagagctg agacacccac aacagtggga gtcacaaaag accctcagag ctgagacacc 240
 cacaacagca cctcgcttcag ctgccacatg tgtgaataag gatgcaatgt ccagaagtgt 300
 t 301

<210> 302
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 302
 aggtacacat ttagcttggt gtaaagtact caaaaaactg attttaaaat caagttaatg 60
 tgaattttga aaattactac ttaatectaa ttcacaataa caatggcatt aaggtttgac 120
 ttgagttggt tcttagtatt atttatggta aataggctct taccacttgc aaataactgg 180
 ccacatcatt aatgactgac tccccagtaa ggctctctaa ggggtaagta ggaggatcca 240
 caggatttga gatgctaagg ccccagagat cgtttgatcc aaccctctta ttttcagagg 300
 g 301

<210> 303
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 303
 aggtaccaac tgtggaaata ggtagaggat ctttttttct ttccatatca actaagttgt 60
 atattgtttt ttgacagttt aacacatctt cttctgtcag agattctttc acaatagcac 120
 tggctaattg aactaccgct tgcattgtaa aaatgggtgt ttgtgaaatg atcataggcc 180
 agtaacgggt atgtttttct aactgatctt ttgctcgttc caaagggacc tcaagacttc 240
 categatttt atatctgggg tctagaaaag gagttaatct gttttccctc ataaattcac 300
 c 301

<210> 304
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 304
 acatggatgt ttttttgcag actgtcaacc tgaatttgta tttgcttgac attgcctaatt 60
 tattagtttc agtttcagct taccactttt ttgtctgcaa catgcaraas agacagtgcc 120
 ctttttagtg tatcatatca ggaatcatct cacattgggt ttgtgccatta ctgggtgcagt 180
 gactttcagc cacttgggta aggtggaggt ggccatatgt ctccactgca aaattactga 240

ttttcctttt gtaattaata agtgtgtgtg tgaagattct ttgagatgag gtatatatct 300
c 301

<210> 305
<211> 301
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)... (301)
<223> n = A,T,C or G

<400> 305
gangtacagc gtggtcaagg taacaagaag aaaaaaatgt gagtggcatc ctgggatgag 60
caggggggaca gacctggaca gacacgttgt catttgctgc tgtgggtagg aaaatgggag 120
taaaggagga gaaacagata caaaatctcc aactcagtat taaggatttc tcatgcctag 180
aatattggta gaaacaagaa tacattcata tggcaaataa ctaaccatgg tggaacaaaa 240
ttctgggatt taagttggat accaangaaa ttgtattaaa agagctgttc atggaataag 300
a 301

<210> 306
<211> 8
<212> PRT
<213> Homo sapien

<400> 306
Val Leu Gly Trp Val Ala Glu Leu
1 5

<210> 307
<211> 637
<212> DNA
<213> Homo sapien

<400> 307
acaggggratg aaggggaaagg gagaggatga ggaagcccc ctgggggattt ggtttggtcc 60
ttgtgatcag gtggtctatg gggcttatcc ctacaaagaa gaatccagaa ataggggcac 120
attgaggaat gatacttgag cccaaagagc attcaatcat tgttttattt gccttmtttt 180
cacaccattg gtgagggagg gattaccacc ctgggggttat gaagatggtt gaacacccca 240
cacatagcac cggagatatg agatcaacag tttcttagcc atagagattc acagcccaga 300
gcaggaggac gcttgacac catgcaggat gacatggggg atgcgctcgg gattggtgtg 360
aagaagcaag gactgttaga ggcaggcttt atagtaacaa gacgggtggg caaactctga 420
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actcattagg ctgagaacct tgtggaatgc acttgaccca sctgatagag gaagtagcca 540
ggtgggagcc tttcccagtg ggtgtgggac atatctggca agattttgtg gcactcctgg 600
ttacagatac tggggcagca aataaaaactg aatcttg 637

<210> 308
<211> 647
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)... (647)
<223> n = A,T,C or G

<400> 308

acgattttca	ttatcatgta	aatcgggtca	ctcaaggggc	caaccacagc	tgggagccac	60
tgctcagggg	aaggttcata	tgggactttc	tactgcccaa	ggttctatac	aggatataaa	120
ggngcctcac	agtagatc	tggtagcaaa	gaagaagaaa	caaacactga	tctctttctg	180
ccacccctct	gaccctttgg	aactcctctg	accctttaga	acaagcctac	ctaatatctg	240
ctagagaaaa	gaccaacaac	ggcctcaaa	gatctcttac	catgaaggtc	tcagctaatt	300
cttgggctaag	atgtgggttc	cacattaggt	tctgaatatg	gggggaaggg	tcaatttgct	360
catttttgtgt	gtggataaa	tcaggatgcc	cagggggccag	agcagggggc	tgcttgcttt	420
gggaacaatg	gctgagcata	taaccatagg	ttatggggaa	caaaacaaca	tcaaagtcac	480
tgtatcaatt	gccatgaaga	cttgagggac	ctgaatctac	cgattcatct	taaggcagca	540
ggaccagttt	gagtggcaac	aatgcagcag	cagaatcaat	ggaaacaaca	gaatgattgc	600
aatgtccttt	tttttctcct	gcttctgact	tgataaaaag	ggaccgt		647

<210> 309

<211> 460

<212> DNA

<213> Homo sapien

<400> 309

actttatagt	ttaggctgga	cattggaaaa	aaaaaaaaagc	cagaacaaca	tgtgatagat	60
aatatgattg	gctgcacact	tccagactga	tgaatgatga	acgtgatgga	ctattgtatg	120
gagcacatct	tcagcaagag	ggggaaatac	tcatcatttt	tggccagcag	ttgtttgatc	180
accaaacatc	atgccagaat	actcagcaaa	ccttcttagc	tcttgagaag	tcaaagtcag	240
ggggaattta	ttcctggcaa	ttttaatttg	actccttatg	tgagagcagc	ggctaccag	300
ctggggtggt	ggagcgaacc	cgctactagt	ggacatgcag	tggcagagct	cctggtaacc	360
acctagagga	atacacaggc	acatgtgtga	tgccaagcgt	gacacctgta	gcactcaaat	420
ttgtcttggt	tttgtctttc	ggtgtgtaag	attcttaagt			460

<210> 310

<211> 539

<212> DNA

<213> Homo sapien

<400> 310

acgggactta	tcaaataaag	ataggaaaag	aagaaaactc	aaatattata	ggcagaaatg	60
ctaaagggtt	aaaaatatgt	caggattgga	agaaggcatg	gataaagaac	aaagttcagt	120
taggaagag	taaacacagaa	ggaagagaca	caataaaagt	cattatgtat	tctgtgagaa	180
gtcagacagt	aagatttgtg	ggaaatgggt	tggtttgttg	tatgggtatgt	atttttagcaa	240
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ctagatagaa	agccttagta	tactcagcta	ggaatagtga	ttctgagggc	acactgtgac	420
atgattatgt	cattacatgt	atggtagtga	tggggatgat	aggaaggaag	aacttatggc	480
atattttcac	ccccacaaaa	gtcagttaaa	tattgggaca	ctaaccatcc	aggtcaaga	539

<210> 311

<211> 526

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (526)

<223> n = A,T,C or G

<400> 311

caaatttgag	ccaatgacat	agaattttac	aaatcaagaa	gcttattctg	gggccatttc	60
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catttacagc	atttaaaatg	tgttcagcat	gaaatattag	ctacagggga	agctaaataa	180

attaaacatg	gaataaagat	ttgtccttaa	atataatcta	caagaagact	ttgatatttg	240
tttttcacaa	gtgaagcatt	cttataaagt	gtcataacct	ttttggggaa	actatgggaa	300
aaaatgggga	aactctgaag	ggttttaagt	atcttacctg	aagctacaga	ctccataacc	360
tctctttaca	gggagctcct	gcagccccta	cagaaatgag	tggttgagat	tcttgattgc	420
acagcaagag	cttctcatct	aaaccctttc	ccttttttagt	atctgtgtat	caagtataaa	480
agttctataa	actgtagtnt	acttatttta	atccccaaag	cacagt		526

<210> 312

<211> 500

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (500)

<223> n = A,T,C or G

<400> 312

cctctctctc	cccacccct	gactctagag	aactggggtt	tctcccagta	ctccagcaat	60
tcattttctga	aagcagttga	gccactttat	tccaaagtac	actgcagatg	ttcaaactct	120
ccattttctct	ttcccttcca	cctgccagtt	ttgctgactc	tcaacttgtc	atgagtgtaa	180
gcattaagga	cattatgctt	cttcgattct	gaagacaggc	cctgctcatg	gatgactctg	240
gcttcttagg	aaaatatttt	tcttccaaaa	tcagtaggaa	atctaaactt	atcccctctt	300
tgcagatgtc	tagcagcttc	agacatttgg	ttaagaaccc	atgggaaaaa	aaaaaatcct	360
tgctaagtgt	gtttcctttg	ttaaccanga	ttcttatttg	nctgggtatag	aatatcagct	420
ctgaacgtgt	ggtaaagatt	tttgtgtttg	aatataggag	aatcagttt	gctgaaaagt	480
tagtcttaat	tatctattgg					500

<210> 313

<211> 718

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (718)

<223> n = A,T,C or G

<400> 313

ggagatttgt	gtggtttgca	gccgagggag	accaggaaga	tctgcatggt	gggaaggacc	60
tgatgataca	gaggtgagaa	ataagaaagg	ctgctgactt	taccatctga	ggccacacat	120
ctgctgaaat	ggagataatt	aacatcacta	gaaacagcaa	gatgacaata	taatgtctaa	180
gtagtgacat	gtttttgca	atttccagcc	cttttaaata	tccacacaca	caggaagcac	240
aaaaggaagc	acagagatcc	ctgggagaaa	tgcccggccg	ccatcttggg	tcacgatga	300
gcctcgccct	gtgcctgntc	ccgcttggtg	gggaaggaca	ttagaaaatg	aattgatgtg	360
ttccttaaa	gatggcagga	aaacagatcc	tggtgtggat	atatttttga	acgggattac	420
agatttgaaa	tgaagtcaca	aagtgcagat	taccaatgag	aggaaaacag	acgagaaaat	480
cttgatgggt	cacaagacat	gcaacaaaca	aaatggaata	ctgtgatgac	acgagcagcc	540
aactggggag	gagataccac	ggggcagagg	tcaggattct	ggccctgctg	cctaactgtg	600
cgttatacca	atcatttcta	tttctaccct	caaacaagct	gtngaataac	tgacttacgg	660
ttcttntggc	ccacattttc	atnatccacc	ccntcntttt	aannttantic	caaantgt	718

<210> 314

<211> 358

<212> DNA

<213> Homo sapien

<400> 314

gtttattttac	attacagaaa	aaacatcaag	acaatgtata	ctatttcaaa	tatatccata	60
cataatcaaa	tatagctgta	gtacatgttt	tcattggtgt	agattaccac	aaatgcaagg	120
caacatgtgt	agatctcttg	tcttattctt	ttgtctataa	tactgtattg	tgtagtccaa	180
gctctcggta	gtccagccac	tgtgaaacat	gctcccttta	gattaacctc	gtggacgctc	240
ttgttgatt	gctgaactgt	agtgcctgt	atthttgcttc	tgtctgtgaa	ttctgttgct	300
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<210> 315

<211> 341

<212> DNA

<213> Homo sapien

<400> 315

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ataggtgatg	atgaggacat	ggaatgggccc	cccaaggatg	gtctgtccaa	agaagcgagt	120
gacccccatt	ctgaagatgt	ctggaacctc	taccagcagg	atgatgatag	ccccaatgac	180
agtcaccagc	tccccgacca	gccggatata	gtccttaggg	gtcatgtagg	cttctgaag	240
tagcttctgc	tgtaaagagg	tgttgctccc	ggggctcgtg	cggttattgg	tcctgggctt	300
gagggggcgg	tagatgcagc	acatggtgaa	gcagatgatg	t		341

<210> 316

<211> 151

<212> DNA

<213> Homo sapien

<400> 316

agactgggca	agactcttac	gccccacact	gcaatttggt	cttgttgccg	tatccattta	60
tgtgggcctt	tctcgagttt	ctgattataa	acaccactgg	agcgatgtgt	tgactggact	120
cattcagggg	gctctgggtg	caatattagt	t			151

<210> 317

<211> 151

<212> DNA

<213> Homo sapien

<400> 317

agaactagt	gataccta	aaatacctga	aacatatatt	ggcatttatc	aatgggtcaa	60
atcttcatt	atctctggcc	ttaaccctgg	ctcctgaggg	tgcggccagc	agatcccagg	120
ccagggtctt	gttcttgcca	cacctgcttg	a			151

<210> 318

<211> 151

<212> DNA

<213> Homo sapien

<400> 318

actggtggga	ggcgtgttt	agttggtgt	tttcagaggg	gtctttcgga	gggacctcct	60
gctgcaggct	ggagtgtctt	tattcctggc	gggagaccgc	acattccact	gctgaggctg	120
tgggggcgg	ttatcaggca	gtgataaaca	t			151

<210> 319

<211> 151

<212> DNA

<213> Homo sapien

<400> 319

aactagtga	tccagagcta	taggtacagt	gtgatctcag	ctttgcaaac	acattttcta	60
catagatagt	actaggtatt	aatagatatg	taaagaaaga	aatcacacca	ttaataatgg	120

taagattggg tttatgtgat tttagtgggt a 151

<210> 320
 <211> 150
 <212> DNA
 <213> Homo sapien

<400> 320
 aactagtgga tccactagtc cagtgtggtg gaattccatt gtgttggggt tctagatcgc 60
 gagcggctgc cctttttttt tttttttttg ggggggaatt tttttttttt aatagttatt 120
 gagtgttcta cagcttacag taaataccat 150

<210> 321
 <211> 151
 <212> DNA
 <213> Homo sapien

<400> 321
 agcaactttg tttttcatcc aggttatctt aggcttagga tttcctctca cactgcagtt 60
 tagggtggca ttgtaaccag ctatggcata ggtgttaacc aaaggctgag taaacatggg 120
 tgcctctgag aaatcaaagt cttcatacac t 151

<210> 322
 <211> 151
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)... (151)
 <223> n = A,T,C or G

<400> 322
 atccagcatc ttctcctggt tcttgccctc ctttttcttc ttcttasatt ctgcttgagg 60
 tttgggcttg gtcagtttgc cacagggctt ggagatgggt acagtcttct ggcattcggc 120
 attgtgcagg gctcgcttca naattccagt t 151

<210> 323
 <211> 151
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)... (151)
 <223> n = A,T,C or G

<400> 323
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 nagactcant tactaccag tttgtgggtt twtgggagaa atgtaactgg acagttagct 120
 gttcaatyaa aaagacactt ancccatgtg g 151

<210> 324
 <211> 461
 <212> DNA
 <213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(461)
 <223> n = A,T,C or G

<400> 324

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agaagtgggc agctaaagga atccaggttg ttggttggac tgtaataacc tttgatgaaa	120
agagttacta cgaatcccat cttggttcca gctatatcac tgacagcatg gtagaagact	180
gcgaacctca cttctagact ttcacggtgg gacgaaacgg gttcagaaac tgccaggggc	240
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cacacaaatg caatagtgtg tcaactgcatt tttacctgaa ccaaagctaa acccggtgtt	360
gccaccatgc accatggcat gccagagttc aacactgttg ctcttgaaaa ttgggtctga	420
aaaaacgcac aagagccctt gcctgcctt agctgangca c	461

<210> 325
 <211> 400
 <212> DNA
 <213> Homo sapien

<400> 325

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agtaagatg gtggcctatt tcagctgctt tgacaaaatg actggctcct gacttaacgt	180
tctataaatg aatgtgctga agcaaagtgc ccatggtggc ggcgaagaag agaaagatgt	240
gttttgtttt ggactctctg tggctccttc caatgctgtg ggtttccaac caggggaagg	300
gtcccttttg cattgccaag tgccataacc atgagcacta cgctaccatg gttctgcctc	360
ctggccaagc aggtctggtt gcaagaatga aatgaatgat	400

<210> 326
 <211> 1215
 <212> DNA
 <213> Homo sapien

<400> 326

ggaggactgc agcccgcaact cgcagccctg gcaggcggca ctggtcatgg aaaacgaatt	60
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gaactcctac accatcgggc tgggcctgca cagtcttgag gccgaccaag agccagggag	180
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cggaggggcaa gaccagaagg actcctgcaa cgggtgactct ggggggcccc tgatctgcaa	540
cgggtacttg cagggccttg tgtctttcgg aaaagccccg tgtggccaag ttggcgtgcc	600
aggtgtctac accaactctt gcaaattcac tgagtggata gagaaaaccg tccaggccag	660
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<210> 327
 <211> 220

<212> PRT

<213> Homo sapien

<400> 327

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Glu Asp Cys Ser Pro His Ser Gln Pro Trp Gln Ala Ala Leu Val Met
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Glu Asn Glu Leu Phe Cys Ser Gly Val Leu Val His Pro Gln Trp Val
          20          25          30
Leu Ser Ala Ala His Cys Phe Gln Asn Ser Tyr Thr Ile Gly Leu Gly
          35          40          45
Leu His Ser Leu Glu Ala Asp Gln Glu Pro Gly Ser Gln Met Val Glu
          50          55          60
Ala Ser Leu Ser Val Arg His Pro Glu Tyr Asn Arg Pro Leu Leu Ala
          65          70          75          80
Asn Asp Leu Met Leu Ile Lys Leu Asp Glu Ser Val Ser Glu Ser Asp
          85          90          95
Thr Ile Arg Ser Ile Ser Ile Ala Ser Gln Cys Pro Thr Ala Gly Asn
          100          105          110
Ser Cys Leu Val Ser Gly Trp Gly Leu Leu Ala Asn Gly Arg Met Pro
          115          120          125
Thr Val Leu Gln Cys Val Asn Val Ser Val Val Ser Glu Glu Val Cys
          130          135          140
Ser Lys Leu Tyr Asp Pro Leu Tyr His Pro Ser Met Phe Cys Ala Gly
          145          150          155          160
Gly Gly Gln Asp Gln Lys Asp Ser Cys Asn Gly Asp Ser Gly Gly Pro
          165          170          175
Leu Ile Cys Asn Gly Tyr Leu Gln Gly Leu Val Ser Phe Gly Lys Ala
          180          185          190
Pro Cys Gly Gln Val Gly Val Pro Gly Val Tyr Thr Asn Leu Cys Lys
          195          200          205
Phe Thr Glu Trp Ile Glu Lys Thr Val Gln Ala Ser
          210          215          220

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<210> 328

<211> 234

<212> DNA

<213> Homo sapien

<400> 328

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<210> 329

<211> 77

<212> PRT

<213> Homo sapien

<400> 329

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Leu Val Ser Gly Ser Cys Ser Gln Ile Ile Asn Gly Glu Asp Cys Ser
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Pro His Ser Gln Pro Trp Gln Ala Ala Leu Val Met Glu Asn Glu Leu
          20          25          30
Phe Cys Ser Gly Val Leu Val His Pro Gln Trp Val Leu Ser Ala Thr
          35          40          45
His Cys Phe Gln Asn Ser Tyr Thr Ile Gly Leu Gly Leu His Ser Leu
          50          55          60

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Glu Ala Asp Gln Glu Pro Gly Ser Gln Met Val Glu Ala
65 70 75

<210> 330
<211> 70
<212> DNA
<213> Homo sapien

<400> 330
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gctgcagcca 70

<210> 331
<211> 22
<212> PRT
<213> Homo sapien

<400> 331
Gln His Asn Gly Pro Ile Pro Ser Leu Thr Pro Pro Ser Gly Ser Leu
1 5 10 15
Val Ser Gly Ser Cys Ser
20

<210> 332
<211> 2507
<212> DNA
<213> Homo sapien

<400> 332
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<211> 3030

<212> DNA

<213> Homo sapien

<400> 333

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 <211> 2417
 <212> DNA
 <213> Homo sapien

<400> 334

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<211> 2984

<212> DNA

<213> Homo sapien

<400> 335

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 <211> 147
 <212> PRT
 <213> Homo sapien

<400> 336
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 Pro Lys Gln Pro Gln Lys Arg Ser Arg Ala Ala Phe Ser His Thr Gln
 35 40 45
 Val Ile Glu Leu Glu Arg Lys Phe Ser His Gln Lys Tyr Leu Ser Ala
 50 55 60
 Pro Glu Arg Ala His Leu Ala Lys Asn Leu Lys Leu Thr Glu Thr Gln
 65 70 75 80
 Val Lys Ile Trp Phe Gln Asn Arg Arg Tyr Lys Thr Lys Arg Lys Gln
 85 90 95
 Leu Ser Ser Glu Leu Gly Asp Leu Glu Lys His Ser Ser Leu Pro Ala
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 Ala Phe Trp
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<210> 337
 <211> 9
 <212> PRT
 <213> Homo sapien

<400> 337
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<210> 338
 <211> 9
 <212> PRT
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<400> 338
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<210> 339
 <211> 318
 <212> PRT
 <213> Homo sapien

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<213> Homo sapien

<400> 341

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<210> 342

<211> 592

<212> DNA

<213> Homo sapien

<400> 342

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<210> 343

<211> 382

<212> DNA

<213> Homo sapien

<400> 343

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<210> 344

<211> 536

<212> DNA

<213> Homo sapien

<400> 344

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<210> 345

<211> 251

<212> DNA

<213> Homo sapien

<400> 345

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<210> 346

<211> 282

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(282)

<223> n = A,T,C or G

<400> 346

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<210> 347

<211> 201

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(201)

<223> n = A,T,C or G

<400> 347

acacacataa tattataaaa tgccatctaa ttggaaggag ctttctatca ttgcaagtca	60
taaataaac ttttaaaaana ntactancag cttttaccta ngctcctaaa tgcttgtaaa	120
tctgagactg actggaccca cccagaccca gggcaaagat acatgttacc atatcatctt	180
tataaagaat ttttttttgt c	201

<210> 348

<211> 251

<212> DNA

<213> Homo sapien

<400> 348

ctgttaatca caacatttgt gcatcacttg tgccaagtga gaaaatgttc taaaatcaca	60
agagagaaca gtgccagaat gaaactgacc ctaagtccca ggtgcccctg ggcaggcaga	120
aggagacact cccagcatgg aggagggttt atcttttcat cctaggtcag gtctacaatg	180
ggggaagggtt ttattataga actcccaaca gccacactca ctctgccac ccacccgatg	240
gccctgcctc c	251

<210> 349

<211> 251

<212> DNA

<213> Homo sapien

<400> 349

taaaaatcaa	gccattta	tgtatctttg	aaggtaaaca	atatatggga	gctggatcac	60
aacccttgag	gatgccagag	ctatgggtcc	agaacatggg	gtgggtattat	caacagagtt	120
cagaaggggtc	tgaactctac	gtgttaccag	agaacataat	gcaattcatg	cattccactt	180
agcaattttg	taaaatacca	gaaacagacc	ccaagagtct	ttcaagatga	ggaaaattca	240
actcctgggt	t					251

<210> 350

<211> 908

<212> DNA

<213> Homo sapien

<400> 350

ctggacactt	tgcgagggct	tttgctgggt	gctgctgctg	cccgatcatgc	tactcatcgt	60
agccgcgcgc	gtgaagctcg	ctgctttccc	tacctcctta	agtgactgcc	aaacgcccac	120
cggctggaat	tgctctgggt	atgatgacag	agaaaatgat	ctcttcctct	gtgacaccaa	180
cacctgtaaa	tttgatgggg	aatgtttaag	aattggagac	actgtgactt	gcgtctgtca	240
gttcaagtgc	aacaatgact	atgtgcctgt	gtgtgggtcc	aatggggaga	gctaccagaa	300
tgagtgttac	ctgcgacagg	ctgcatgcaa	acagcagagt	gagatacttg	tgggtgtcaga	360
aggatcatgt	gccacagtcc	atgaaggctc	tggagaaaact	agtcaaaagg	agacatccac	420
ctgtgatatt	tgccagtttg	gtgcagaatg	tgacgaagat	gccgaggatg	tctgggtgtg	480
gtgtaatat	gactgttctc	aaaccaactt	caatcccctc	tgcgcttctg	atgggaaatc	540
ttatgataat	gcatgccaaa	tcaaagaagc	atcgtgtcag	aaacaggaga	aaattgaagt	600
catgtctttg	ggtcgatgtc	aagataacac	aactacaact	actaagtctg	aagatgggca	660
ttatgcaaga	acagattatg	cagagaatgc	taacaaatta	gaagaaagtg	ccagagaaca	720
ccacatacct	tgtccggaac	attacaatgg	cttctgcatg	catgggaagt	gtgagcattc	780
tatcaatatg	caggagccat	cttgcagggt	tgatgctggg	tatactggac	aacactgtga	840
aaaaaaggac	tacagtgttc	tatacgttgt	tcccgggtct	gtacgatttc	agtatgtctt	900
aatcgacg						908

<210> 351

<211> 472

<212> DNA

<213> Homo sapien

<400> 351

ccagttattt	gcaagtggta	agagcctatt	taccataaat	aataactaaga	accaactcaa	60
gtcaaacctt	aatgccattg	ttattgtgaa	ttaggattaa	gtagtaattt	tcaaaattca	120
cattaacttg	attttaaaat	cagwtttgyg	agtcatttac	cacaagctaa	atgtgtacac	180
tatgataaaa	acaaccattg	tattcctgtt	tttctaaaca	gtcctaattt	ctaactctgt	240
atatatcctt	cgacatcaat	gaactttgtt	ttcttttact	ccagtaataa	agtaggcaca	300
gatctgtcca	caacaaaact	gccctctcat	gccttgccctc	tcaccatget	ctgctccagg	360
tcagccccct	tttggtctgt	ttgttttgtc	aaaaacctaa	tctgcttctt	gcttttcttg	420
gtaatatata	tttaggggaag	atgttgcttt	gccacacac	gaagcaaagt	aa	472

<210> 352

<211> 251

<212> DNA

<213> Homo sapien

<400> 352

ctcaaagcta	atctctcggg	aatcaaacca	gaaaagggca	aggatcttag	gcatgggtgga	60
tgtggataag	gccagggtcaa	tggtctgcaag	catgcagaga	aagagggtaca	tcggagcgtg	120
caggctgcgt	tccgtcctta	cgatgaagac	cacgatgcag	tttccaaaca	ttgccactac	180
atacatggaa	aggaggggga	agccaaccca	gaaatggggt	ttctctaate	ctgggatacc	240
aataagcaca	a					251

<210> 353
 <211> 436
 <212> DNA
 <213> Homo sapien

<400> 353
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 cacattatgg tattattact atactgatta tattttatcat gtgacttcta attaraaaat 120
 gtatccaaaa gcaaaacagc agatatacaa aattaaagag acagaagata gacattaaca 180
 gataaggcaa cttatacatt gacaatccaa atccaatata tttaaacatt tgggaaatga 240
 gggggacaaa tgggaagccar atcaaatttg tgtaaaacta ttcagtatgt ttcccttgct 300
 tcatgtctga raaggctctc ccttcaatgg ggatgacaaa ctccaaatgc cacacaaatg 360
 ttaacagaat actagattca cactggaacg ggggtaaaga agaaattatt ttctataaaa 420
 gggtctctaa tgtagt 436

<210> 354
 <211> 854
 <212> DNA
 <213> Homo sapien

<400> 354
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 caagtctgaa accaaatcta ggaaacatag gaaacgagcc aggcacaggg ctggtggggc 120
 atcagggacc accctttggg ttgatatttt gcttaatctg catcttttga gtaagatcat 180
 ctggcagtag aagctgttct ccagggtacat ttctctagct catgtacaaa aacatcctga 240
 aggactttgt caggtgcctt gctaaaagcc agatgcgttc ggcacttctt tggcttgagg 300
 ttaattgcac acctacaggc actgggctca tgctttcaag tattttgtcc tcactttagg 360
 gtgagtgaat gatccccatt ataggagcac ttgggagaga tcatataaaa gctgactctt 420
 gagtacatgc agtaatgggg tagatgtgtg tgggtgtgtc tcattcctgc aagggtgctt 480
 gttagggagt gtttccagga ggaacaagtc tgaaaccaat catgaaataa atggtagggtg 540
 tgaactggaa aactaattca aaagagagat cgtgatatca gtgtgggtga tacaccttgg 600
 caatatggaa ggctctaatt tgcccatatt tgaaataata attcagcttt ttgtaataca 660
 aaataacaaa ggattgagaa tcatggtgtc taatgtataa aagaccagag aaacataaat 720
 atatcaactg cataaatgta aaatgcatgt gacccaagaa ggccccaag tggcagacaa 780
 cattgtaccc attttccctt ccaaaatgtg agcggcgggc ctgctgcttt caaggctgtc 840
 acacgggatg tcag 854

<210> 355
 <211> 676
 <212> DNA
 <213> Homo sapien

<400> 355
 gaaattaagt atgagctaaa ttccctgtta aaacctctag gggtgacaga tctcttcaac 60
 caggtcaaag ctgatctttc tgggaatgtca ccaaccaagg gcctatattt atcaaaagcc 120
 atccacaagt catacctgga tgtcagcgaa gagggcacgg aggcagcagc agccactggg 180
 gacagcatcg ctgtaaaaag cctaccaatg agagctcagt tcaaggcgaa ccacctcttc 240
 ctgttcttta taaggcacac tcataccaac acgatcctat tctgtggcaa gcttgccctc 300
 ccctaatacg atgggggtga gtaaggctca gagggtgcaga tgagggtgcag agacaatcct 360
 gtgactttcc cagggccaaa aagctgttca cacctcacgc acctctgtgc ctcagtttgc 420
 tcatctgcaa aataggtcta ggatttcttc caaccatttc atgagttgtg aagctaaggc 480
 tttgttaatc atggaaaaag gtagacttat gcagaaagcc tttctggctt tcttatctgt 540
 ggtgtctcat ttgagtgtctg tccagtgcac tgatcaagtc aatgagtaaa attttaaggg 600
 attagatttt cttgacttgt atgtatctgt gagatcttga ataagtgacc tgacatctct 660
 gcttaaaaga aaccag 676

<210> 356

<211> 574
 <212> DNA
 <213> Homo sapien

<400> 356
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 catgtggcac ctgactggca tcaaaccaaa gttcgtaggc caacaaagat gggccactca 120
 caagcttccc atttgtagat ctcaagtgcct atgagtatct gacacctgtt cctctcttca 180
 gtctcttagg gaggcttaaa tctgtctcag gtgtgctaag agtgccagcc caaggkggtc 240
 aaaagtccac aaaactgcag tctttgctgg gatagtaagc caagcagtgc ctggacagca 300
 gagttctttt cttgggcaac agataaccag acaggactct aatcgtgctc ttattcaaca 360
 ttcttctgtc tctgcctaga ctggaataaa aagccaatct ctctcgtggc acaggggaagg 420
 agatacaagc tcgtttacat gtgatagatc taacaaaggc atctaccgaa gtctggtctg 480
 gatagacggc acaggagct cttaggtcag cgctgctggt tggaggacat tcctgagtcc 540
 agctttgcag cctttgtgca acagtacttt ccca 574

<210> 357
 <211> 393
 <212> DNA
 <213> Homo sapien

<400> 357
 tttttttttt tttttttttt tttttttttt tacagaatat aratgcttta tcaactgkact 60
 taatatggkg kcttggtcac tatacttaaa aatgcaccac tcataaatat ttaattcagc 120
 aagccacaac caaracttga ttttatcaac aaaaaccctt aaatataaac ggsaaaaaag 180
 atagatataa ttattccagt ttttttaaaa cttaaaarat attccattgc cgaattaara 240
 araarataag tggtatatgg aaagaagggc attcaagcac actaaaraaa cctgaggkaa 300
 gcataatctg tacaaaatta aactgtcctt tttggcattt taacaaattt gcaacgktct 360
 tttttttctt tttctgtttt tttttttttt tac 393

<210> 358
 <211> 630
 <212> DNA
 <213> Homo sapien

<400> 358
 acaggggtaaa caggaggatc cttgctctca cggagcttac attctagcag gaggacaata 60
 ttaatgttta taggaaaatg atgagtttat gacaaaggaa gtagatagtg ttttacaaga 120
 gcatagagta ggggaagctaa tccagcacag ggaggtcaca gagacatccc taaggaaagt 180
 gagtttaaac tgagagaagc aagtgtctaa actgaaggat gtgttgaaga agaagggaga 240
 gtagaacaat ttgggcagag ggaaccttat agaccctaag gtgggaagggt tcaagaact 300
 gaaagagagc tagaacagct ggagccgttc tccggtgtaa agaggagtca aagagataag 360
 attaaagatg tgaagattaa gatcttggtg gcattcaggg attggcactt ctacaagaaa 420
 tcaactgaagg gagtaatgtg acattacttt tcacttcagg atggccattc taactccagg 480
 gggtagactg gactaggtaa gactggaggg aggtagacct cttctaaggc ctgcgatagt 540
 gaaagacaaa aataagtggg gaaattcagg ggatagttaa aatcagtagg acttaatgag 600
 caagccagag gttctctcac aacaaccagt 630

<210> 359
 <211> 620
 <212> DNA
 <213> Homo sapien

<400> 359
 acagcattcc aaaatataca tctagagact aarrgtaaat gctctatagt gaagaagtaa 60
 taattaaaaa atgctactaa tatagaaaat ttataatcag aaaaataaat attcagggag 120
 ctaccagaa gaataaagt ctctgccagt tattaagga ttactgctgg tgaattaaat 180
 atggcattcc ccaagggaaa tagagagatt cttctggatt atgttcaata tttatttcac 240

aggattaact	gttttaggaa	cagatataaa	gcttcgccac	ggaagagatg	gacaaagcac	300
aaagacaaca	tgatacctta	ggaagcaaca	ctaccctttc	aggcataaaa	tttggagaaa	360
tgcaacatta	tgcttcatga	ataatatgta	gaaagaaggt	ctgatgaaaa	tgacatcctt	420
aatgtaagat	aactttataa	gaattctggg	tcaaataaaa	ttctttgaag	aaaacatcca	480
aatgtcattg	actttatcaa	tactatcttg	gcatataacc	tatgaaggca	aaactaaaca	540
aacaaaaagc	tcacaccaaa	caaaaccatc	aacttatttt	gtattctata	acatacgaga	600
ctgtaaagat	gtgacagtgt					620

<210> 360

<211> 431

<212> DNA

<213> Homo sapien

<400> 360

aaaaaaaaaa	agccagaaca	acatgtgata	gataaatatga	ttggctgcac	acttccagac	60
tgatgaatga	tgaacgtgat	ggactattgt	atggagcaca	tcttcagcaa	gagggggaaa	120
tactcatcat	ttttggccag	cagttgtttg	atcaccaaac	atcatgccag	aatactcagc	180
aaaccttctt	agctcttgag	aagtcaaagt	ccgggggaat	ttattcctgg	caattttaat	240
tggactcctt	atgtgagagc	agcggctacc	cagctggggg	ggtggagcga	acccgtcact	300
agtggacatg	cagtggcaga	gtccttggtg	accacctaga	ggaatacaca	ggcacatgtg	360
tgatgccaag	cgtgacacct	gtagcactca	aatttgtctt	gtttttgtct	ttcgggtgtg	420
agattcttag	t					431

<210> 361

<211> 351

<212> DNA

<213> Homo sapien

<400> 361

acactgattt	ccgatcaaaa	gaatcatcat	ctttaccttg	acttttcagg	gaattactga	60
actttcttct	cagaagatag	ggcacagcca	ttgccttggc	ctcacttgaa	gggtctgcat	120
ttgggtcctc	tggtctcttg	ccaagtttcc	cagccactcg	agggagaaat	atcggggagg	180
ttgacttctt	ccggggcttt	cccaggggct	tcaccgtgag	ccctgcggcc	ctcagggctg	240
caatcctgga	ttcaatgtct	gaaacctcgc	tctctgcctg	ctggacttct	gagggcgtca	300
ctgccactct	gtcctccagc	tctgacagct	cctcatctgt	ggtcctgttg	t	351

<210> 362

<211> 463

<212> DNA

<213> Homo sapien

<400> 362

acttcatcag	gccataatgg	gtgcctcccg	tgagaatcca	agcacctttg	gactgcgcga	60
tgtagatgag	ccggctgaag	atcttgcgca	tgcgcggctt	cagggcgaag	ttcttggcgc	120
ccccggtcac	agaaatgacc	agggtgggtg	ttttcagggt	ccagtgtctg	gtcagcagct	180
cgtaaaggat	ttccgcgtcc	gtgtcgcagg	acagacgtat	atacttccct	ttcttcccca	240
gtgtctcaaa	ctgaatatcc	ccaaaggcgt	cggtaggaaa	ttccttggtg	tgtttcttgt	300
agttccattt	ctcacttttg	ttgatctggg	tgcttcccat	gtgctggctc	tgggcatagc	360
cacacttgca	cacattctcc	ctgataagca	cgatgggtgtg	gacaggaagg	aaggatttca	420
ttgagcctgc	ttatggaaac	tggtattgtt	agcttaaata	gac		463

<210> 363

<211> 653

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (653)

<223> n = A,T,C or G

<400> 363

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ctcttgngna	ttctgggtga	catcttcatg	aatggcaacc	gtgccagwga	ggctgtcctc	120
tgggaggcac	tacgcaagat	gggactgeg	cctgggggtga	gacatcctct	ccttggagat	180
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tagcaagatg	naagtgttga	gantcattgc	agaggttcag	aaaagagacc	cntcgtgact	360
ggtctgcaca	gttcatggag	gctgcagatg	aggccttgga	tgctctggat	gctgctgcag	420
ctgaggccga	agcccgggct	gaagcaagaa	cccgcattgg	aattggagat	gaggctgtgt	480
ntgggcccctg	gagctgggat	gacattgagt	ttgagctgct	gacctgggat	gaggaaggag	540
attttgagaga	tccntgggtcc	agaattccat	ttaccttctg	ggccagatac	caccagaatg	600
cccgtccag	attccctcag	acctttgccg	gtcccattat	tggtcstggt	ggt	653

<210> 364

<211> 401

<212> DNA

<213> Homo sapien

<400> 364

actagaggaa	agacgttaaa	ccactctact	accacttggtg	gaactctcaa	agggtaaatg	60
acaaagccaa	tgaatgactc	taaaaacaat	atttacattt	aatggtttgt	agacaataaa	120
aaaacaagg	ggatagatct	agaattgtaa	cattttaaga	aaacatagc	atttgacaga	180
tgagaaagct	caattataga	tgcaaagtta	taactaaact	actatagtag	taaagaaata	240
catttcacac	ccttcatata	aattcactat	cttggttga	ggcactccat	aaaatgtatc	300
acgtgcatag	taaatcttta	tatttgctat	ggcgttgac	tagaggactt	ggactgcaac	360
aagtggatgc	gcggaataatg	aaatcttctt	caatagccca	g		401

<210> 365

<211> 356

<212> DNA

<213> Homo sapien

<400> 365

ccagtgtcat	atttgggctt	aaaatttcaa	gaagggcact	tcaaattggct	ttgcatttgc	60
atgtttcagt	gctagagcgt	aggaatagac	cctggcgctc	actgtgagat	gttcttcagc	120
taccagagca	tcaagtctct	gcagcaggtc	attcttgggt	aaagaaatga	cttcacaaaa	180
ctctccatcc	cctggctttg	gcttcggcct	tgctttttcg	gcacatctct	cggttaatggt	240
gactgtcacg	atgtgtatag	tacagtttga	caagcctggg	tccatacaga	ccgctggaga	300
acattcggca	atgtccctt	tgtagccagt	ttcttcttcg	agctcccga	gagcag	356

<210> 366

<211> 1851

<212> DNA

<213> Homo sapien

<400> 366

tcatcaccat	tgccagcagc	ggcaccgtta	gtcaggtttt	ctgggaatcc	cacatgagta	60
cttccgtgtt	cttcattctt	cttcaatagc	cataaatctt	ctagctctgg	ctggctgttt	120
tcaacttctt	taagcctttg	tgactcttcc	tctgatgtca	gctttaagtc	ttgttctgga	180
ttgtgtttt	cagaagagat	ttttaacatc	tgtttttctt	tgtagtcaga	aagtaactgg	240
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cagcaagtat	gagagcagtt	cttccatata	tatccagcgc	atttaaattc	gcttttttct	420
tgattaaaaa	tttcaccact	tgctgttttt	gctcatgtat	accaagtagc	agtggtgtga	480
ggccatgctt	gttttttgat	tcgatatacg	caccgtataa	gagcagtgtc	ttggccatta	540

atztatcttc	attgtagaca	gcatagtgtg	gagtggtatt	tccatactca	tctggaatat	600
ttggatcagt	gccatgttcc	agcaacatta	acgcacattc	atcttcctgg	cattgtacgg	660
cctttgtcag	agctgtcctc	tttttgttgt	caaggacatt	aagttgacat	cgtctgtcca	720
gcacgagttt	tactacttct	gaattcccat	tggcagaggc	cagatgtaga	gcagtcctct	780
tttgcttgtc	cctcttggtc	acatccgtgt	ccctgagcat	gacgatgaga	tcctttctgg	840
ggactttacc	ccaccaggca	gctctgtgga	gcttgctccag	atcttctcca	tggacgtggt	900
acctgggata	catgaaggcg	ctgtcatcgt	agtctcccca	agcgaccacg	ttgctcttgc	960
cgctcccttg	cagcagggga	agcagtggca	gcaccacttg	cacctcttgc	tcccaagcgt	1020
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gtccatccag	ggaggaagaa	atgcaggaaa	tgaaagatgc	atgcacgatg	gtatactcct	1140
cagccatcaa	acttctggac	agcaggtcac	ttccagcaag	gtggagaaag	ctgtccaccc	1200
acagaggatg	agatccagaa	accacaatat	ccattcacaa	acaaacactt	ttcagccaga	1260
cacaggtact	gaaatcatgt	catctgcggc	aacatggtgg	aacctaccca	atcacacatc	1320
aagagatgaa	gacactgcag	tatatctgca	caacgtaata	ctcttcaccc	ataacaaaat	1380
aatataattt	tcctctggag	ccatatggat	gaactatgaa	ggaagaactc	cccgaagaag	1440
ccagtcgcag	agaagccaca	ctgaagctct	gtcctcagcc	atcagcgcca	cggacaggar	1500
tggttttctt	ccccgtgat	gcagcctcaa	gttatcccca	agctgccgca	gcacacggtg	1560
gctcctgaga	aacaccccag	ctcttccggg	ctaacacagg	caagtcaata	aatgtgataa	1620
tcacataaac	agaattaaaa	gcaaagtcac	ataagcatct	caacagacac	agaaaaggca	1680
tttgacaaaa	tccagcatcc	ttgtatttat	tggtgcagtt	ctcagaggaa	atgctttctaa	1740
cttttcccca	tttagtatta	tggttgctgt	gggcttgctc	taggtgggtt	ttattacttt	1800
aaggtatgtc	ccttctatgc	ctgttttgct	gagggtttta	attctcgtgc	c	1851

<210> 367

<211> 668

<212> DNA

<213> Homo sapien

<400> 367

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ttcagtattt	tgaagataaa	atrrgtagat	ctataccttg	ttttttgatt	cgatatcagc	120
accrtataag	agcagtgtct	tggccattaa	tttatctttc	atrrtagaca	gcrtagtgya	180
gagtggattt	tccatactca	tctggaatat	ttggatcagt	gccatgttcc	agcaacatta	240
acgcacattc	atcttcctgg	cattgtacgg	cctgtcagta	ttagacccaa	aaacaaatta	300
catatcttag	gaattcaaaa	taacattcca	cagctttcac	caactagtta	tatttaaagg	360
agaaaactca	tttttatgcc	atgtattgaa	atcaaaccce	cctcatgctg	atatagttag	420
ctactgcata	cctttatcag	agctgtcctc	tttttgttgt	caaggacatt	aagttgacat	480
cgtctgtcca	gcaggagttt	tactacttct	gaattcccat	tggcagaggc	cagatgtaga	540
gcagtcctat	gagagtgaga	agacttttta	ggaaattgta	gtgcactagc	tacagccata	600
gcaatgattc	atgtaactgc	aaacactgaa	tagcctgcta	ttactctgcc	ttcaaaaaaa	660
aaaaaaaa						668

<210> 368

<211> 1512

<212> DNA

<213> Homo sapien

<400> 368

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<210> 369

<211> 1853

<212> DNA

<213> Homo sapien

<400> 369

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<210> 370

<211> 2184

<212> DNA

<213> Homo sapien

<400> 370

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<210> 371

<211> 1855

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(1855)

<223> n = A,T,C or G

<400> 371

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<210> 372

<211> 1059

<212> DNA

<213> Homo sapien

<400> 372

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<210> 373

<211> 1155

<212> DNA

<213> Homo sapien

<400> 373

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<210> 374

<211> 2000

<212> DNA

<213> Homo sapien

<400> 374

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<210> 375
 <211> 2040
 <212> DNA
 <213> Homo sapien

<400> 375
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 ggagactacg atgacagtgc cttcatggag cccagggtacc acgtccgtgg agaagatctg 420
 gacaagctcc acagagctgc ctgggtgggg aaagtcccca gaaaggatct catcgctcatg 480
 ctgagggaca ctgacgtgaa caagaaggac aagcaaaaaga ggactgctct acatctggcc 540
 tctgccaatg ggaattcaga agtagtaaaa ctctgctgg acagacgatg tcaacttaat 600
 gtctttgaca acaaaaagag gacagctctg ataaaggccg tacaatgcca ggaagatgaa 660
 tgtgcgttaa tgttgctgga acatggcact gatccaaata ttccagatga gtatggaaat 720
 accactctgc actacgctat ctataatgaa gataaattaa tggccaaagc actgctctta 780
 tatggtgctg atatcgaatc aaaaaacaag catggcctca caccactgtt acttgggtgta 840
 catgagcaaa aacagcaagt cgtgaaattt ttaatcaaga aaaaagcgaa tttaaatgca 900
 ctggatagat atggaaggac tgctctcata ctgctgtgat gttgtggatc agcaagtata 960
 gtcagccttc tacttgagca aaatattgat gtatcttctc aagatctatc tggacagacg 1020
 gccagagagt atgctgtttc tagtcatcat catgtaattt gccagttact ttctgactac 1080
 aaagaaaaac agatgctaaa aatctcttct gaaaacagca atccagaaca agacttaaag 1140
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 aatgggtgata atggattaat tcctcaaagg aagagcagaa cacctgaaaa tcagcaattt 1380
 cctgacaacg aaagtgaaga gtatcacaga atttgcgaaat tagtttctga ctacaaagaa 1440
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 tcagaggaag agtcacaaag gcttgagggc agtgaaaatg gccagccaga gaaaagatct 1560
 caagaaccag aaataaataa ggatgggtgat agagagctag aaaattttat ggctatcgaa 1620
 gaaatgaaga agcacggaag tactcatgtc ggattcccag aaaacctgac taatgggtgcc 1680
 actgctggca atggtgatga tggattaatt cctccaagga agagcagaac acctgaaagc 1740
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 aagcaatttt gtgaagaaca gaacactgga atattacacg atgagattct gattcatgaa 1860
 gaaaagcaga tagaagtggg tgaaaaaatg aattctgagc tttctcttag ttgtaagaaa 1920
 gaaaaagaca tcttgcatga aaatagtacg ttgcgggaag aaattgccat gctaagactg 1980
 gagctagaca caatgaaaca tcagagccag ctaaaaaaa aaaaaaaaaa aaaaaaaaaa 2040

<210> 376
 <211> 329
 <212> PRT
 <213> Homo sapien

<400> 376
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 1 5 10 15
 Leu His Leu Ala Gly Ser Asp Leu Leu Ser Arg Ser Leu Met Ala Glu
 20 25 30
 Glu Tyr Thr Ile Val His Ala Ser Phe Ile Ser Cys Ile Ser Ser Ser
 35 40 45
 Leu Asp Gly Gln Gly Glu Arg Gln Glu Gln Arg Gly His Phe Trp Arg
 50 55 60

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Pro Gln Arg Leu Leu Cys Glu Asp Ala Trp Glu Gln Glu Val Gln Val
65          70          75          80
Val Leu Pro Leu Leu Pro Leu Leu Gln Gly Ser Gly Lys Ser Asn Val
      85          90          95
Val Ala Trp Gly Asp Tyr Asp Asp Ser Ala Phe Met Asp Pro Arg Tyr
      100          105          110
His Val His Gly Glu Asp Leu Asp Lys Leu His Arg Ala Ala Trp Trp
      115          120          125
Gly Lys Val Pro Arg Lys Asp Leu Ile Val Met Leu Arg Asp Thr Asp
      130          135          140
Val Asn Lys Arg Asp Lys Gln Lys Arg Thr Ala Leu His Leu Ala Ser
145          150          155          160
Ala Asn Gly Asn Ser Glu Val Val Lys Leu Val Leu Asp Arg Arg Cys
      165          170          175
Gln Leu Asn Val Leu Asp Asn Lys Lys Arg Thr Ala Leu Thr Lys Ala
      180          185          190
Val Gln Cys Gln Glu Asp Glu Cys Ala Leu Met Leu Leu Glu His Gly
      195          200          205
Thr Asp Pro Asn Ile Pro Asp Glu Tyr Gly Asn Thr Thr Leu His Tyr
      210          215          220
Ala Val Tyr Asn Glu Asp Lys Leu Met Ala Lys Ala Leu Leu Leu Tyr
225          230          235          240
Gly Ala Asp Ile Glu Ser Lys Asn Lys His Gly Leu Thr Pro Leu Leu
      245          250          255
Leu Gly Ile His Glu Gln Lys Gln Gln Val Val Lys Phe Leu Ile Lys
      260          265          270
Lys Lys Ala Asn Leu Asn Ala Leu Asp Arg Tyr Gly Arg Thr Ala Leu
      275          280          285
Ile Leu Ala Val Cys Cys Gly Ser Ala Ser Ile Val Ser Pro Leu Leu
      290          295          300
Glu Gln Asn Val Asp Val Ser Ser Gln Asp Leu Glu Arg Arg Pro Glu
305          310          315          320
Ser Met Leu Phe Leu Val Ile Ile Met
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<210> 377

<211> 148

<212> PRT

<213> Homo sapien

<220>

<221> VARIANT

<222> (1)...(148)

<223> Xaa = Any Amino Acid

<400> 377

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Trp Thr Ser Ser Thr Glu Leu Pro Trp Trp Gly Lys Val Pro Arg Lys
      20          25          30
Asp Leu Ile Val Met Leu Arg Asp Thr Asp Val Asn Lys Xaa Asp Lys
      35          40          45
Gln Lys Arg Thr Ala Leu His Leu Ala Ser Ala Asn Gly Asn Ser Glu
      50          55          60
Val Val Lys Leu Xaa Leu Asp Arg Arg Cys Gln Leu Asn Val Leu Asp
65          70          75          80
Asn Lys Lys Arg Thr Ala Leu Xaa Lys Ala Val Gln Cys Gln Glu Asp
      85          90          95

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Glu Cys Ala Leu Met Leu Leu Glu His Gly Thr Asp Pro Asn Ile Pro
 100 105 110
 Asp Glu Tyr Gly Asn Thr Thr Leu His Tyr Ala Xaa Tyr Asn Glu Asp
 115 120 125
 Lys Leu Met Ala Lys Ala Leu Leu Leu Tyr Gly Ala Asp Ile Glu Ser
 130 135 140
 Lys Asn Lys Val
 145

<210> 378
 <211> 1719
 <212> PRT
 <213> Homo sapien

<400> 378
 Met Val Val Glu Val Asp Ser Met Pro Ala Ala Ser Ser Val Lys Lys
 1 5 10 15
 Pro Phe Gly Leu Arg Ser Lys Met Gly Lys Trp Cys Cys Arg Cys Phe
 20 25 30
 Pro Cys Cys Arg Glu Ser Gly Lys Ser Asn Val Gly Thr Ser Gly Asp
 35 40 45
 His Asp Asp Ser Ala Met Lys Thr Leu Arg Ser Lys Met Gly Lys Trp
 50 55 60
 Cys Arg His Cys Phe Pro Cys Cys Arg Gly Ser Gly Lys Ser Asn Val
 65 70 75 80
 Gly Ala Ser Gly Asp His Asp Asp Ser Ala Met Lys Thr Leu Arg Asn
 85 90 95
 Lys Met Gly Lys Trp Cys Cys His Cys Phe Pro Cys Cys Arg Gly Ser
 100 105 110
 Gly Lys Ser Lys Val Gly Ala Trp Gly Asp Tyr Asp Asp Ser Ala Phe
 115 120 125
 Met Glu Pro Arg Tyr His Val Arg Gly Glu Asp Leu Asp Lys Leu His
 130 135 140
 Arg Ala Ala Trp Trp Gly Lys Val Pro Arg Lys Asp Leu Ile Val Met
 145 150 155 160
 Leu Arg Asp Thr Asp Val Asn Lys Lys Asp Lys Gln Lys Arg Thr Ala
 165 170 175
 Leu His Leu Ala Ser Ala Asn Gly Asn Ser Glu Val Val Lys Leu Leu
 180 185 190
 Leu Asp Arg Arg Cys Gln Leu Asn Val Leu Asp Asn Lys Lys Arg Thr
 195 200 205
 Ala Leu Ile Lys Ala Val Gln Cys Gln Glu Asp Glu Cys Ala Leu Met
 210 215 220
 Leu Leu Glu His Gly Thr Asp Pro Asn Ile Pro Asp Glu Tyr Gly Asn
 225 230 235 240
 Thr Thr Leu His Tyr Ala Ile Tyr Asn Glu Asp Lys Leu Met Ala Lys
 245 250 255
 Ala Leu Leu Leu Tyr Gly Ala Asp Ile Glu Ser Lys Asn Lys His Gly
 260 265 270
 Leu Thr Pro Leu Leu Leu Gly Val His Glu Gln Lys Gln Gln Val Val
 275 280 285
 Lys Phe Leu Ile Lys Lys Lys Ala Asn Leu Asn Ala Leu Asp Arg Tyr
 290 295 300
 Gly Arg Thr Ala Leu Ile Leu Ala Val Cys Cys Gly Ser Ala Ser Ile
 305 310 315 320
 Val Ser Leu Leu Leu Glu Gln Asn Ile Asp Val Ser Ser Gln Asp Leu
 325 330 335
 Ser Gly Gln Thr Ala Arg Glu Tyr Ala Val Ser Ser His His His Val

1265 1270 1275 1280
 Asn Ile Pro Asp Glu Tyr Gly Asn Thr Thr Leu His Tyr Ala Ile Tyr
 1285 1290 1295
 Asn Glu Asp Lys Leu Met Ala Lys Ala Leu Leu Leu Tyr Gly Ala Asp
 1300 1305 1310
 Ile Glu Ser Lys Asn Lys His Gly Leu Thr Pro Leu Leu Leu Gly Val
 1315 1320 1325
 His Glu Gln Lys Gln Gln Val Val Lys Phe Leu Ile Lys Lys Lys Ala
 1330 1335 1340
 Asn Leu Asn Ala Leu Asp Arg Tyr Gly Arg Thr Ala Leu Ile Leu Ala
 1345 1350 1355 1360
 Val Cys Cys Gly Ser Ala Ser Ile Val Ser Leu Leu Leu Glu Gln Asn
 1365 1370 1375
 Ile Asp Val Ser Ser Ser Gln Asp Leu Ser Gly Gln Thr Ala Arg Glu Tyr
 1380 1385 1390
 Ala Val Ser Ser His His His Val Ile Cys Gln Leu Leu Ser Asp Tyr
 1395 1400 1405
 Lys Glu Lys Gln Met Leu Lys Ile Ser Ser Glu Asn Ser Asn Pro Glu
 1410 1415 1420
 Gln Asp Leu Lys Leu Thr Ser Glu Glu Glu Ser Gln Arg Phe Lys Gly
 1425 1430 1435 1440
 Ser Glu Asn Ser Gln Pro Glu Lys Met Ser Gln Glu Pro Glu Ile Asn
 1445 1450 1455
 Lys Asp Gly Asp Arg Glu Val Glu Glu Glu Met Lys Lys His Glu Ser
 1460 1465 1470
 Asn Asn Val Gly Leu Leu Glu Asn Leu Thr Asn Gly Val Thr Ala Gly
 1475 1480 1485
 Asn Gly Asp Asn Gly Leu Ile Pro Gln Arg Lys Ser Arg Thr Pro Glu
 1490 1495 1500
 Asn Gln Gln Phe Pro Asp Asn Glu Ser Glu Glu Tyr His Arg Ile Cys
 1505 1510 1515 1520
 Glu Leu Val Ser Asp Tyr Lys Glu Lys Gln Met Pro Lys Tyr Ser Ser
 1525 1530 1535
 Glu Asn Ser Asn Pro Glu Gln Asp Leu Lys Leu Thr Ser Glu Glu Glu
 1540 1545 1550
 Ser Gln Arg Leu Glu Gly Ser Glu Asn Gly Gln Pro Glu Lys Arg Ser
 1555 1560 1565
 Gln Glu Pro Glu Ile Asn Lys Asp Gly Asp Arg Glu Leu Glu Asn Phe
 1570 1575 1580
 Met Ala Ile Glu Glu Met Lys Lys His Gly Ser Thr His Val Gly Phe
 1585 1590 1595 1600
 Pro Glu Asn Leu Thr Asn Gly Ala Thr Ala Gly Asn Gly Asp Asp Gly
 1605 1610 1615
 Leu Ile Pro Pro Arg Lys Ser Arg Thr Pro Glu Ser Gln Gln Phe Pro
 1620 1625 1630
 Asp Thr Glu Asn Glu Glu Tyr His Ser Asp Glu Gln Asn Asp Thr Gln
 1635 1640 1645
 Lys Gln Phe Cys Glu Glu Gln Asn Thr Gly Ile Leu His Asp Glu Ile
 1650 1655 1660
 Leu Ile His Glu Glu Lys Gln Ile Glu Val Val Glu Lys Met Asn Ser
 1665 1670 1675 1680
 Glu Leu Ser Leu Ser Cys Lys Lys Glu Lys Asp Ile Leu His Glu Asn
 1685 1690 1695
 Ser Thr Leu Arg Glu Glu Ile Ala Met Leu Arg Leu Glu Leu Asp Thr
 1700 1705 1710
 Met Lys His Gln Ser Gln Leu
 1715

<210> 379
 <211> 656
 <212> PRT
 <213> Homo sapien

<400> 379
 Met Val Val Glu Val Asp Ser Met Pro Ala Ala Ser Ser Val Lys Lys
 1 5 10 15
 Pro Phe Gly Leu Arg Ser Lys Met Gly Lys Trp Cys Cys Arg Cys Phe
 20 25 30
 Pro Cys Cys Arg Glu Ser Gly Lys Ser Asn Val Gly Thr Ser Gly Asp
 35 40 45
 His Asp Asp Ser Ala Met Lys Thr Leu Arg Ser Lys Met Gly Lys Trp
 50 55 60
 Cys Arg His Cys Phe Pro Cys Cys Arg Gly Ser Gly Lys Ser Asn Val
 65 70 75 80
 Gly Ala Ser Gly Asp His Asp Asp Ser Ala Met Lys Thr Leu Arg Asn
 85 90 95
 Lys Met Gly Lys Trp Cys Cys His Cys Phe Pro Cys Cys Arg Gly Ser
 100 105 110
 Gly Lys Ser Lys Val Gly Ala Trp Gly Asp Tyr Asp Asp Ser Ala Phe
 115 120 125
 Met Glu Pro Arg Tyr His Val Arg Gly Glu Asp Leu Asp Lys Leu His
 130 135 140
 Arg Ala Ala Trp Trp Gly Lys Val Pro Arg Lys Asp Leu Ile Val Met
 145 150 155 160
 Leu Arg Asp Thr Asp Val Asn Lys Lys Asp Lys Gln Lys Arg Thr Ala
 165 170 175
 Leu His Leu Ala Ser Ala Asn Gly Asn Ser Glu Val Val Lys Leu Leu
 180 185 190
 Leu Asp Arg Arg Cys Gln Leu Asn Val Leu Asp Asn Lys Lys Arg Thr
 195 200 205
 Ala Leu Ile Lys Ala Val Gln Cys Gln Glu Asp Glu Cys Ala Leu Met
 210 215 220
 Leu Leu Glu His Gly Thr Asp Pro Asn Ile Pro Asp Glu Tyr Gly Asn
 225 230 235 240
 Thr Thr Leu His Tyr Ala Ile Tyr Asn Glu Asp Lys Leu Met Ala Lys
 245 250 255
 Ala Leu Leu Leu Tyr Gly Ala Asp Ile Glu Ser Lys Asn Lys His Gly
 260 265 270
 Leu Thr Pro Leu Leu Leu Gly Val His Glu Gln Lys Gln Gln Val Val
 275 280 285
 Lys Phe Leu Ile Lys Lys Lys Ala Asn Leu Asn Ala Leu Asp Arg Tyr
 290 295 300
 Gly Arg Thr Ala Leu Ile Leu Ala Val Cys Cys Gly Ser Ala Ser Ile
 305 310 315 320
 Val Ser Leu Leu Leu Glu Gln Asn Ile Asp Val Ser Ser Gln Asp Leu
 325 330 335
 Ser Gly Gln Thr Ala Arg Glu Tyr Ala Val Ser Ser His His His Val
 340 345 350
 Ile Cys Gln Leu Leu Ser Asp Tyr Lys Glu Lys Gln Met Leu Lys Ile
 355 360 365
 Ser Ser Glu Asn Ser Asn Pro Glu Gln Asp Leu Lys Leu Thr Ser Glu
 370 375 380
 Glu Glu Ser Gln Arg Phe Lys Gly Ser Glu Asn Ser Gln Pro Glu Lys
 385 390 395 400
 Met Ser Gln Glu Pro Glu Ile Asn Lys Asp Gly Asp Arg Glu Val Glu
 405 410 415

Glu Glu Met Lys Lys His Glu Ser Asn Asn Val Gly Leu Leu Glu Asn
 420 425 430
 Leu Thr Asn Gly Val Thr Ala Gly Asn Gly Asp Asn Gly Leu Ile Pro
 435 440 445
 Gln Arg Lys Ser Arg Thr Pro Glu Asn Gln Gln Phe Pro Asp Asn Glu
 450 455 460
 Ser Glu Glu Tyr His Arg Ile Cys Glu Leu Val Ser Asp Tyr Lys Glu
 465 470 475 480
 Lys Gln Met Pro Lys Tyr Ser Ser Glu Asn Ser Asn Pro Glu Gln Asp
 485 490 495
 Leu Lys Leu Thr Ser Glu Glu Glu Ser Gln Arg Leu Glu Gly Ser Glu
 500 505 510
 Asn Gly Gln Pro Glu Leu Glu Asn Phe Met Ala Ile Glu Glu Met Lys
 515 520 525
 Lys His Gly Ser Thr His Val Gly Phe Pro Glu Asn Leu Thr Asn Gly
 530 535 540
 Ala Thr Ala Gly Asn Gly Asp Asp Gly Leu Ile Pro Pro Arg Lys Ser
 545 550 555 560
 Arg Thr Pro Glu Ser Gln Gln Phe Pro Asp Thr Glu Asn Glu Glu Tyr
 565 570 575
 His Ser Asp Glu Gln Asn Asp Thr Gln Lys Gln Phe Cys Glu Glu Gln
 580 585 590
 Asn Thr Gly Ile Leu His Asp Glu Ile Leu Ile His Glu Glu Lys Gln
 595 600 605
 Ile Glu Val Val Glu Lys Met Asn Ser Glu Leu Ser Leu Ser Cys Lys
 610 615 620
 Lys Glu Lys Asp Ile Leu His Glu Asn Ser Thr Leu Arg Glu Glu Ile
 625 630 635 640
 Ala Met Leu Arg Leu Glu Leu Asp Thr Met Lys His Gln Ser Gln Leu
 645 650 655

<210> 380

<211> 671

<212> PRT

<213> Homo sapien

<400> 380

Met Val Val Glu Val Asp Ser Met Pro Ala Ala Ser Ser Val Lys Lys
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 Pro Phe Gly Leu Arg Ser Lys Met Gly Lys Trp Cys Cys Arg Cys Phe
 20 25 30
 Pro Cys Cys Arg Glu Ser Gly Lys Ser Asn Val Gly Thr Ser Gly Asp
 35 40 45
 His Asp Asp Ser Ala Met Lys Thr Leu Arg Ser Lys Met Gly Lys Trp
 50 55 60
 Cys Arg His Cys Phe Pro Cys Cys Arg Gly Ser Gly Lys Ser Asn Val
 65 70 75 80
 Gly Ala Ser Gly Asp His Asp Asp Ser Ala Met Lys Thr Leu Arg Asn
 85 90 95
 Lys Met Gly Lys Trp Cys Cys His Cys Phe Pro Cys Cys Arg Gly Ser
 100 105 110
 Gly Lys Ser Lys Val Gly Ala Trp Gly Asp Tyr Asp Asp Ser Ala Phe
 115 120 125
 Met Glu Pro Arg Tyr His Val Arg Gly Glu Asp Leu Asp Lys Leu His
 130 135 140
 Arg Ala Ala Trp Trp Gly Lys Val Pro Arg Lys Asp Leu Ile Val Met
 145 150 155 160
 Leu Arg Asp Thr Asp Val Asn Lys Lys Asp Lys Gln Lys Arg Thr Ala

Leu	His	Leu	Ala	Ser	Ala	Asn	Gly	Asn	Ser	Glu	Val	Val	Lys	Leu	Leu	
			180					185					190			
Leu	Asp	Arg	Arg	Cys	Gln	Leu	Asn	Val	Leu	Asp	Asn	Lys	Lys	Arg	Thr	
		195					200					205				
Ala	Leu	Ile	Lys	Ala	Val	Gln	Cys	Gln	Glu	Asp	Glu	Cys	Ala	Leu	Met	
		210				215					220					
Leu	Leu	Glu	His	Gly	Thr	Asp	Pro	Asn	Ile	Pro	Asp	Glu	Tyr	Gly	Asn	
225					230					235					240	
Thr	Thr	Leu	His	Tyr	Ala	Ile	Tyr	Asn	Glu	Asp	Lys	Leu	Met	Ala	Lys	
				245				250						255		
Ala	Leu	Leu	Leu	Tyr	Gly	Ala	Asp	Ile	Glu	Ser	Lys	Asn	Lys	His	Gly	
			260				265						270			
Leu	Thr	Pro	Leu	Leu	Leu	Gly	Val	His	Glu	Gln	Lys	Gln	Gln	Val	Val	
		275				280						285				
Lys	Phe	Leu	Ile	Lys	Lys	Lys	Ala	Asn	Leu	Asn	Ala	Leu	Asp	Arg	Tyr	
	290					295				300						
Gly	Arg	Thr	Ala	Leu	Ile	Leu	Ala	Val	Cys	Cys	Gly	Ser	Ala	Ser	Ile	
305					310				315						320	
Val	Ser	Leu	Leu	Leu	Glu	Gln	Asn	Ile	Asp	Val	Ser	Ser	Gln	Asp	Leu	
				325				330						335		
Ser	Gly	Gln	Thr	Ala	Arg	Glu	Tyr	Ala	Val	Ser	Ser	His	His	His	Val	
			340				345						350			
Ile	Cys	Gln	Leu	Leu	Ser	Asp	Tyr	Lys	Glu	Lys	Gln	Met	Leu	Lys	Ile	
	355					360						365				
Ser	Ser	Glu	Asn	Ser	Asn	Pro	Glu	Gln	Asp	Leu	Lys	Leu	Thr	Ser	Glu	
	370				375					380						
Glu	Glu	Ser	Gln	Arg	Phe	Lys	Gly	Ser	Glu	Asn	Ser	Gln	Pro	Glu	Lys	
385					390				395						400	
Met	Ser	Gln	Glu	Pro	Glu	Ile	Asn	Lys	Asp	Gly	Asp	Arg	Glu	Val	Glu	
				405					410					415		
Glu	Glu	Met	Lys	Lys	His	Glu	Ser	Asn	Asn	Val	Gly	Leu	Leu	Glu	Asn	
			420					425					430			
Leu	Thr	Asn	Gly	Val	Thr	Ala	Gly	Asn	Gly	Asp	Asn	Gly	Leu	Ile	Pro	
		435					440					445				
Gln	Arg	Lys	Ser	Arg	Thr	Pro	Glu	Asn	Gln	Gln	Phe	Pro	Asp	Asn	Glu	
	450				455						460					
Ser	Glu	Glu	Tyr	His	Arg	Ile	Cys	Glu	Leu	Val	Ser	Asp	Tyr	Lys	Glu	
465					470					475					480	
Lys	Gln	Met	Pro	Lys	Tyr	Ser	Ser	Glu	Asn	Ser	Asn	Pro	Glu	Gln	Asp	
				485				490						495		
Leu	Lys	Leu	Thr	Ser	Glu	Glu	Glu	S								

<400> 381

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<210> 382
<211> 3279
<212> DNA
<213> Homo sapiens
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<400> 382

BNSDOCID: <WO__0134802A2_1_>

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gcatatccga cagttattct ctccaagtgg agacttacgg acagcatata attctccctg 2220
caaggatgta tgataatatg tacaaagtaa ttccaactga ggaagctcac ctgataccta 2280
gtgtccaggg tttttactgg gggctctgtg gacgagtatg gactacttga ataattgacc 2340
tgaagtcctc agacctgagg ttccctagag ttcaaacaga tacagcatgg tccagagtcc 2400
cagatgtaca aaaacaggga ttcatcacaa atcccatctt tagcatgaag ggtctggcat 2460
ggcccaaggc cccaagtata tcaaggcact tgggcagaac atgccaagga atcaaagtgc 2520
atctcccagg agttattcaa gggtagagcc tttacttggg atgtacaggc tttgagcagt 2580
gcagggtcgc tgagtcaacc ttttattgta caggggatga gggaaagga gaggatgagg 2640
aagccccctt ggggatttgg tttggtcttg tgatcaggtg gtctatgggg ctatccctac 2700
aaagaagaat ccagaaatag gggcacattg aggaatgata ctgagcccaa agagcattca 2760
atcattgttt tatttgcctt cttttcacac cattggtgag ggagggatta ccaccctggg 2820
gttatgaaga tggttgaaca cccacacat agcaccggag atatgagatc aacagtttct 2880
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acaagacggg ggggcaaact ctgatttccg tgggggaatg tcatggtctt gctttactaa 3060
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cccagctgat agaggaagta gccagggtgg agcctttccc agtgggtgtg ggacatatct 3180
ggcaagattt tgtggcactc ctggttacag atactggggc agcaaataaa actgaatctt 3240
gttttcagac cttaaaaaaa aaaaaaaaaa aaaagtttt 3279

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<210> 383

<211> 154

<212> PRT

<213> Homo sapiens

<400> 383

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Met Ala Gly Val Arg Asp Gln Gly Gln Gly Ala Arg Trp Pro His Thr
      5                                10                                15

Gly Lys Arg Gly Pro Leu Leu Gln Gly Leu Thr Trp Ala Thr Gly Gly
      20                                25                                30

His Cys Phe Ser Ser Glu Glu Ser Gly Ala Val Asp Gly Ala Gly Gln
      35                                40                                45

Lys Lys Asp Arg Ala Trp Leu Arg Cys Pro Glu Ala Val Ala Gly Phe
      50                                55                                60

Pro Leu Gly Ser Asp Cys Arg Glu Gly Gly Arg Gln Gly Cys Gly Gly
      65                                70                                75                                80

Ser Asp Asp Glu Asp Asp Leu Gly Val Ala Pro Gly Leu Ala Pro Ala
      85                                90                                95

Trp Ala Leu Thr Gln Pro Pro Ser Gln Ser Pro Gly Pro Gln Ser Leu
      100                               105                               110

Pro Ser Thr Pro Ser Ser Ile Trp Pro Gln Trp Val Ile Leu Ile Thr
      115                               120                               125

Glu Leu Thr Ile Pro Ser Pro Ala His Gly Pro Pro Trp Leu Pro Asn
      130                               135                               140

Ala Leu Glu Arg Gly His Leu Val Arg Glu
      145                               150

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<210> 384
<211> 557
<212> DNA
<213> Homo sapiens

<400> 384
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aaagatgtgt tttgttttgg actctctgtg gtcccttcca atgctgtggg tttccaacca 120
ggggaagggt cccttttgca ttgccaagt ccataaccat gagcactact ctaccatggg 180
tetgctcct ggccaagcag gctggtttgc aagaatgaaa tgaatgattc tacagctagg 240
acttaacctt gaaatggaaa gtcttgcaat ccattttgca ggatccgtct gtgcacatgc 300
ctctgtagag agcagcattc ccagggacct tggaaacagt tggcactgta aggtgcttgc 360
tccccaaagac acatcctaaa aggtgttgta atggtgaaaa cgtcttcctt ctttattgcc 420
ccttcttatt tatgtgaaca actgtttgtc tttttttgta tcttttttaa actgtaaagt 480
tcaattgtga aaatgaatat catgcaaata aattatgcga ttttttttcc aaagtaaaaa 540
aaaaaaaaa aaaaaaa 557

<210> 385
<211> 337
<212> DNA
<213> Homo sapiens

<400> 385
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gtttctctag cagcagatgg gttaggagga agtgacccaa gtggttgact cctatgtgca 120
tctcaaagcc atctgctgtc ttcgagtacg gacacatcat cactcctgca ttgttgatca 180
aaacgtggag gtgcttttcc tcagctaaga agcccttagc aaaagctcga atagacttag 240
tatcagacag gtccagtttc cgcaccaaca cctgctggtt ccctgctgtg gtctggatct 300
ctttggccac caattcccc ttttccacat cccggca 337

<210> 386
<211> 300
<212> DNA
<213> Homo sapiens

<400> 386
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gcccgtctcg cccagagggt gggcgcgggg ctgcctctac cggctggcgg ctgtaactca 120
gcgaccttgg cccgaaggct ctagcaagga cccaccgacc ccagccgcgg cggcgggcggc 180
gcggactttg cccggtgtgt ggggaggagc ggactgctgt tccgcggacg ggcagcgaag 240
atgttagcct tcgctgccag gaccgtggac cgatcccagg gctgtggtgt aacctcagcc 300

<210> 387
<211> 537
<212> DNA
<213> Homo sapiens

<400> 387
gggcccagtc gggcaccaag ggactctttg caggcttctt tctcggatc atcaaggctg 60
ccccctcttg tgccatcatg atcagcacct atgagttcgg caaaagcttc ttccagaggc 120
tgaaccagga ccggttctg ggcggctgaa aggggcaagg aggcaaggac cccgtctctc 180
ccacggatgg ggagagggca ggaggagacc cagccaagt ccttttctc agcactgagg 240
gagggggctt gtttcccttc cctcccggcg acaagctcca gggcagggt gtccctctgg 300
gcggcccagc acttctcag acacaacttc ttctgtctgc tccagtcgtg gggatcatca 360
cttaccacc ccccaagtgc aagaccaaata cttccagctg ccccttctgt gtttccctgt 420
gtttgctgta gctgggcatg tctccaggaa ccaagaagcc ctacagctgg ttagtctcc 480
ctgacccttg ttaattcctt aagtctaaag atgatgaact tcaaaaaaaa aaaaaaa 537

<210> 388
<211> 520
<212> DNA
<213> Homo sapiens

<400> 388
aggataattt ttaaaccaat caaatgaaaa aaacaaacaa acaaaaaagg aaatgtcatg 60
tgagggttaaa ccagtttgca ttcccctaata gtggaaaaag taagaggact actcagcact 120
gtttgaagat tgcctcttct acagcttctg agaatttgtt tatttcactt gccaaagtga 180
ggacccccctc cccaacatgc cccagcccac ccctaagcat ggtcccttgt caccaggcaa 240
ccaggaaaact gctacttggt gacctcacca gagaccagga gggtttggtt agctcacagg 300
acttccccca cccagaaga ttagcatccc atactagact cataactcaac tcaactaggc 360
tcataactcaa ttgatgggtt ttagacaatt ccatttcttt ctggttatta taaacagaaa 420
atctttcttc ttctcattac cagtaaaggc tcttggtatc tttctgttgg aatgatttct 480
atgaacttgt cttattttaa tggtaggggt ttttcttggt 520

<210> 389
<211> 365
<212> DNA
<213> Homo sapiens

<400> 389
cgttgccccg gtttgacaga aggaaaggcg gagcttatcc aaagtctaga gggagtggag 60
gagttaaggc tggatttcag atctgcctgg ttccagccgc agtgtgccct ctgctcccc 120
aacgactttc caaataatct caccagcgcc ttccagctca ggcgtcctag aagcgtcttg 180
aagcctatgg ccagctgtct ttgtgttccc tctcaccgcg ctgtcctcac agctgagact 240
cccaggaaac cttcagacta ccttctctcg ccttcagcaa ggggcgttgc ccacattctc 300
tgagggtcag tggagaacc tagactccca ttgctagagg tagaaagggg aagggtgctg 360
gggag 365

<210> 390
<211> 221
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(221)
<223> n = A,T,C or G

<400> 390
tgcctctcca tcttggeccc gacttctctg tcaggaaagt ggggatggac cccatctgca 60
tacacggntt ctcatgggtg tggaaacatct ctgcttgagg ttccaggaag gcctctggct 120
gctctangag tctgancnga ntcgttgccc cantntgaca naaggaaagg cggagcttat 180
tcaaagtcta gagggagtgg aggagttaag gctggatttc a 221

<210> 391
<211> 325
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(325)
<223> n = A,T,C or G

<400> 391

```

tggagcaggt cccgaggcct ccctagagcc tggggccgac tctgtgncga tgcangcttt 60
ctctcgccgc cagcctggag ctgctcctgg catctaccaa caatcagncg aggcgagcag 120
tagccagggc actgctgcca acagccagtc cnnataccat catgtnaccc ggtgngctct 180
naanttngat ntccanagcc ctacccatcn tagttctgct ctcccaccgg ntaccagccc 240
cactgcccag gaatcctaca gccagtaccg tgtcccgacg tctctaccta ccagtacgat 300
gagacctccg gctactacta tgacc                                     325

```

<210> 392

<211> 277

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1) ... (277)

<223> n = A,T,C or G

<400> 392

```

atattgttta actccttcct ttatatcttt taacattttc atggngaaag gttcacatct 60
agtctcactt nggcnagnn ctctacttg agtctcttcc cgggcctggn ccagtngnaa 120
antaccanga accgncatgn cttaanaacn ncctggtttn tgggttnntc aatgactgca 180
tgcagtgcac caccctgtcc actacgtgat gctgtaggat taaagtctca cagtgggcgg 240
ctgaggatac agcgccgcgt cctgtgttgc tggggaa                                     277

```

<210> 393

<211> 566

<212> DNA

<213> Homo sapiens

<400> 393

```

actagtccag tgtggtggaa ttgcgcggccg cgtcgacgga caggtcagct gtctggctca 60
gtgatctaca ttctgaagtt gtctgaaaat gtcttcatga ttaaattcag cctaaacgtt 120
ttgccgggaa cactgcagag acaatgctgt gagtttccaa ccttagccca tctgcgggca 180
gagaaggtct agtttgtcca tcagcattat catgatata ggactgggta cttgggtaag 240
gaggggtcta ggagatctgt cccttttaga gacaccttac ttataatgaa gtatttggga 300
gggtggtttt caaaagtaga aatgtcctgt attccgatga tcatcctgta aacattttat 360
catttattaa tcacccctgc ctgtgtctat tattatatc atatctctac gctggaaact 420
ttctgcctca atgtttactg tgcctttgtt tttgctagtt tgtgttggtg aaaaaaaaaa 480
cattctctgc ctgagtttta atttttgtcc aaagttattt taatctatac aattaaagc 540
ttttgcctat caaaaaaaaa aaaaaa                                     566

```

<210> 394

<211> 384

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1) ... (384)

<223> n = A,T,C or G

<400> 394

```

gaacatacat gtcccggcac ctgagctgca gtctgacatc atcgccatca cgggcctcgc 60
tgcaaattng gaccgggcca aggctggact gctggagcgt gtgaaggagc tacaggccna 120
gcaggaggac cgggctttta ggagttttta gctgagtgtc actgtagacc ccaaatacca 180
tccaagatt atcgggagaa agggggcagt aattacccaa atccggttg agcatgacgt 240
gaacatccag tttcctgata aggacgatgg gaaccagccc caggaccaa ttaccatcac 300
agggtagcaa aagaacacag aagctgccag ggatgctata ctgagaattg tgggtgaact 360

```

tgagcagatg gtttctgagg acgt

384

<210> 395

<211> 399

<212> DNA

<213> Homo sapiens

<400> 395

```
ggcaaaactg tgtgacctca ataagacctc gcagatccaa ggtcaagtat cagaagtgc 60
tctgaccttg gactccaaga cctacatcaa cagcctggct atattagatg atgagccagt 120
tatcagaggt ttcattcatt cggaattgtt ggagtctaag gaaatcatgg cctctgaagt 180
attcacgtct ttccagtacc ctgagttctc tatagagttg cctaacacag gcagaattgg 240
ccagctactt gtctgcaatt gtatcttcaa gaataccctg gccatccctt tgactgacgt 300
caagttctct ttggaaagcc tgggcatctc ctactacag acctctgacc atgggacggg 360
gcagcctggg gagaccatcc aatcccaaat aaaatgcac 399
```

<210> 396

<211> 403

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(403)

<223> n = A,T,C or G

<400> 396

```
tggagttntc agtgcaaaaca agccataaag cttcagtagc aaattactgt ctcacagaaa 60
gacattttca acttctgctc cagctgctga taaaacaaat catgtgttta gcttgactcc 120
agacaaggac aacctgttcc ttcataaact tctagagaaa aaaaggaggt gttagtagat 180
actaaaaaaaa gtggatgaat aatctggata ttttccctaa aaagattcct tgaaacacat 240
taggaaaatg gagggcctta tgatcagaat gctagaatta gtccattgtg ctgaagcagg 300
gtttagggga gggagtggag gataaaagaa ggaaaaaaag aagagtgaga aaacctat 360
atcaaagcag gtgctatcac tcaatgttag gccctgctct ttt 403
```

<210> 397

<211> 100

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(100)

<223> n = A,T,C or G

<400> 397

```
actagtnacg tgtgggtggaa ttgcgggccg cgtcgacctc naanccatct ctatagcaaa 60
tccatccccg ctctgggttg gtnacagaat gactgacaaa 100
```

<210> 398

<211> 278

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(278)

<223> n = A,T,C or G

<400> 398

```

gcggccgcgt cgacagcagt tccgccagcg ctgccectg ggtggggatg tgctgcacgc 60
ccacctggac atctggaagt cagcggcctg gatgaaagag cggacttcac ctggggcgat 120
tcactactgt gcctcgacca gtgaggagag ctggaccgac agcgagggtg actcatcatg 180
ctccggggcag cccatccacc tgtggcagtt cctcaaggag ttgctactca agccccacag 240
ctatggccgc ttcattangt ggctcaacaa ggagaagg 278

```

<210> 399

<211> 298

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(298)

<223> n = A,T,C or G

<400> 399

```

acggagggtg aggaagcgnc cctgggatcg anaggatggg tcctgncatt gaccncctcn 60
gggggtgccng catggagcgc atgggcgcgg gcctggggcca cggcatggat cgcgtgggct 120
ccgagatcga gcgcattggg ctgggtcatgg accgcatggg ctccgtggag cgcattgggct 180
ccggcattga gcgcattggg ccgctggggc tcgaccacat ggccctccanc attgancgca 240
tgggccagac catggagcgc attgggtctg gcgtggagcn catgggtgcc ggcattggg 298

```

<210> 400

<211> 548

<212> DNA

<213> Homo sapiens

<400> 400

```

acatcaacta cttcctcatt ttaaggtatg gcagttccct tcateccctt ttctgcctt 60
gtacatgtac atgtatgaaa ttctcttctc ttaccgaact ctctccacac atcacaagg 120
caaagaacca cacgcttaga agggtaagag ggcacctat gaaatgaaat ggtgatttct 180
tgagtctctt tttccacgt ttaaggggccc atggcaggac ttagagttgc gagttaagac 240
tgcagagggc tagagaatta ttctatacag gctttgaggc caccatgtc acttatcccg 300
tataccctct caccatcccc ttgtctactc tgatgcccc aagatgcaac tgggcagcta 360
gttggcccca taattctggg cttttgttgt ttgttttaat tacttgggca tcccaggaag 420
ctttccagtg atctcctacc atgggcccc ctctggggat caagcccctc ccaggccctg 480
tccccagccc ctctgcccc agcccaccg cttgccttgg tgctcagccc tccattggg 540
agcagggtt 548

```

<210> 401

<211> 355

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(355)

<223> n = A,T,C or G

<400> 401

```

actgtttcca tggtatgttt ctacacattg ctacctcagt gctcctggaa acttagcttt 60
tgatgtctcc aagtagtcca ctttcattta actctttgaa actgtatcat ctttgccaag 120
taagagtggg ggcctatttc agctgctttg acaaaatgac tggctcctga cttaacgttc 180
tataaatgaa tgtgtcgaag caaagtgcc atggtggcgg cgaagaagan aaagatgtgt 240
tttgttttgg actctctgtg gtcccttcca atgctgnngg tttccaacca ggggaagggt 300

```

cccttttgcgca ttgccaaagtg ccataacccat gagcactact ctaccatggn tctgc 355

<210> 402

<211> 407

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(407)

<223> n = A,T,C or G

<400> 402

atggggcgaag ctggataaag aaccaagacc cactggagta tgctgtcttc aagaaaccca 60
tctcacatgc ggtggcatat ataggctcaa aataaaggaa tggagaaaaa tatttcaagc 120
aaatggaaaa cagaaaaaag caggtgttgc actcctactt tctgacaaaa cagactatgc 180
gaataaagat aaaaaagaga aggacattac aaaggtgggc ctgacctttg ataaatctca 240
ttgcttgata ccaacctggg ctgttttaac tgcccaaacc aaaaggataa tttgctgagg 300
ttgtggagct tctccctgc agagagtccc tgatctccca aaatttggtt gagatgtaag 360
gntgattttg ctgacaactc cttttctgaa gttttactca tttccaa 407

<210> 403

<211> 303

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(303)

<223> n = A,T,C or G

<400> 403

cagtatttat agccnaactg aaaagctagt agcaggcaag tctcaaattc aggcacccaaa 60
tcctaagcaa gagccatggc atggtgaaaa tgcaaaagga gagtctggcc aatctacaaa 120
tagagaacaa gacctactca gtcataaaca aaaaggcaga caccaacatg gatctcatgg 180
gggattggat attgtaatta tagagcagga agatgacagt gatcgtcatt tggcacaaca 240
tcttaacaac gaccgaaacc cattatttac ataaacctcc attcggtaac catgttgaaa 300
gga 303

<210> 404

<211> 225

<212> DNA

<213> Homo sapiens

<400> 404

aagtgtgaat tttaaaaatt tagtggattt tgaaaattct tagaggaaag taaaggaaaa 60
attgttaatg cactcattta cttttacatg gtgaaagttc tctcttgatc ctacaaacag 120
acattttcca ctctgttttc catagtgtt aagtgtatca gatgtgttgg gcatgtgaat 180
ctccaagtgc ctgtgtaata aataaagtat ctttatttca ttcatt 225

<210> 405

<211> 334

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(334)

<223> n = A,T,C or G

<400> 405

```
gagctgttat actgtgagtt ctactaggaa atcatcaaat ctgaggggtg tctggaggac 60
ttcaatacac ctccccccat agtgaatcag cttccagggg gtccagtccc tctccttact 120
tcattccccat cccatgccaa aggaagaccc tccctccttg gtcacagcc ttctctaggc 180
ttcccagtgct ctccaggaca gagtgggtta tgttttcagc tccatccttg ctgtgagtgt 240
ctgggtgcggg tgtgcctcca gcttctgctc agtgcttcat ggacagtgtc cagcccatgt 300
cactctccac tctctcanng tggatccac ccct 334
```

<210> 406

<211> 216

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(216)

<223> n = A,T,C or G

<400> 406

```
tttcatacct aatgagggag ttganatnac atnnaaccag gaaatgcatg gatctcaang 60
gaaacaaaca cccaataaac tcggagtggc agactgacaa ctgtgagaca tgcacttgct 120
acnaaacaca aatttnatgt tgcacccttg tttctacacc tgtgggttat gacaaagaca 180
actgccaaag aatnttcaag aaggaggact gccant 216
```

<210> 407

<211> 413

<212> DNA

<213> Homo sapiens

<400> 407

```
gctgacttgc tagtatcatc tgcattcatt gaagcacaag aacttcatgc cttgactcat 60
gtaaatgcaa taggattaaa aaataaattt gatatcacat ggaaacagac aaaaaatatt 120
gtacaacatt gcaccagtg tcagattcta cacctggcca ctcaggaagc aagagttaat 180
cccagaggtc tatgtcctaa tgtgttatgg caaatggatg tcatgcacgt accttcattt 240
ggaaaattgt catttgtcca tgtgacagtt gatacttatt cacatttcat atgggcaacc 300
tgccagacag gagaaagtct tcccatgtta aaagacattt attatcttgt tttcctgtca 360
tgggagttcc agaaaaagtt aaaacagaca atgggcccagg ttctgtagta aag 413
```

<210> 408

<211> 183

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(183)

<223> n = A,T,C or G

<400> 408

```
ggagctngcc ctcaattcct ccatntctat gttancatat ttaatgtctt ttgnnattaa 60
tncettaacta gttaatectt aaagggtan ntaatcctta actagtcctt ccattgtgag 120
cattatcctt ccagtattcn cettctnttt tatttactcc ttcttggtta cccatgtact 180
ntt 183
```

<210> 409

<211> 250

```

<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(250)
<223> n = A,T,C or G

<400> 409
cccacgcatg ataagctctt tattttctgta agtcctgcta ggaaatcatc aaatctgacg 60
gtgggtttggg ggacctgaac aaacctcctg taattaatca gctttcagtt tctccccccta 120
gtccctcctt caacaacata ggaggatcct ccccttcttt ctgctcacgg ccttatctag 180
gcttcccagt gccccagga cagcgtgggc tatgtttaca gcgctcctt gctggggggg 240
ggcctatgc                                     250

<210> 410
<211> 306
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(306)
<223> n = A,T,C or G

<400> 410
ggctgggtttg caagaatgaa atgaatgatt ctacagctag gacttaacct tgaaatggaa 60
agtcttgcaa tcccatattgc aggatccgtc tgtgcacatg cctctgtaga gagcagcatt 120
cccagggacc ttggaaacag ttggcactgt aagggtgctt ctccccaaga cacatcctaa 180
aagggtgttg aatggtgaaa accgcttctt tctttattgc cccttcttat ttatgtgaac 240
nactgggttg ctttttttgn atctttttta aactggaaag ttcaattgng aaaatgaata 300
tctntgc                                     306

<210> 411
<211> 261
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(261)
<223> n = A,T,C or G

<400> 411
agagatattn cttaggtnaa agttcataga gttcccatga actatatgac tggccacaca 60
ggatcttttg tatttaagga ttctgagatt ttgcttgagc aggattagat aaggctgttc 120
tttaaagtgc tgaaatggaa cagatttcaa aaaaaaaccc cacaatctag ggtgggaaca 180
aggaaggaaa gatgtgaata ggctgatggg caaaaaacca atttaccat cagttccagc 240
cttctctcaa ggngaggcaa a                                     261

<210> 412
<211> 241
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(241)

```


<223> n = A,T,C or G

<400> 412

```
gttcaatggt acctgacatt tctacaacac ccactcacc gatgtattcg ttgcccagtg 60
ggaacatacc agcctgaatt tggaaaaaat aattgtgttt cttgcccagg aaatactacg 120
actgactttg atggctccac aaacataacc cagtgtaaaa acagaagatg tggaggggag 180
ctgggagatt tctactgggt cattgaattc ccaaactacc cangcaatta ccagccaac 240
a 241
```

<210> 413

<211> 231

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(231)

<223> n = A,T,C or G

<400> 413

```
aactcttaca atccaagtga ctcatctgtg tgcttgaate cttccactg tctcatctcc 60
ctcatccaag tttctagtag cttctctttg ttgtgaagga taatcaaact gaacaacaaa 120
aagtttactc tcctcatttg gaacctaaaa actctcttct tcctgggtct gagggctcca 180
agaatccttg aatcanttct cagatcattg gggacaccan atcaggaacc t 231
```

<210> 414

<211> 234

<212> DNA

<213> Homo sapiens

<400> 414

```
actgtccatg aagcactgag cagaagctgg aggcacaacg caccagacac tcacagcaag 60
gatggagctg aaaacataac ccactctgtc ctggaggcac tgggaagcct agagaaggct 120
gtgagccaag gagggagggt cttccttttg catgggatgg ggatgaagta aggagagggg 180
ctggaccccc tggaagctga ttcactatgg ggggaggtgt attgaagtcc tcca 234
```

<210> 415

<211> 217

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(217)

<223> n = A,T,C or G

<400> 415

```
gcataggatt aagactgagt atcttttcta cattctttta acttttctaag gggcacttct 60
caaaacacag accaggtagc aaatctccac tgetctaagg ntctcaccac cacttttctca 120
cacctagcaa tagtagaatt cagtcctact tctgaggcca gaagaatggt tcagaaaaat 180
antggattat aaaaaataac aattaagaaa aataatc 217
```

<210> 416

<211> 213

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature
<222> (1)...(213)
<223> n = A,T,C or G

<400> 416
atgcataatnt aaagganact gcctcgcttt tagaagacat ctggnetgct ctctgcatga 60
ggcacagcag taaagctctt tgattcccag aatcaagaac tctccccttc agactattac 120
cgaatgcaag gtggttaatt gaaggccact aattgatgct caaatagaag gatattgact 180
atattggaac agatggagtc tctactacaa aag 213

<210> 417
<211> 303
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(303)
<223> n = A,T,C or G

<400> 417
nagtcttcag gcccatcagg gaagttcaca ctggagagaa gtcatacata tgtactgtat 60
gtgggaaagg ctttactctg agttcaaadc ttcaagccca tcagagagtc cacactggag 120
agaagccata caaatgcaat gagtgtggga agagcttcag gagggattcc cattatcaag 180
ttcatctagt ggtccacaca ggagagaaac cctataaatg tgagatatgt gggaagggtc 240
tcantcaaag ttcgtatctt caaatccatc ngaaggacca cagtatanan aaacctttta 300
agt 303

<210> 418
<211> 328
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(328)
<223> n = A,T,C or G

<400> 418
tttttgccgg tgggtggggca gggacggggac angagtctca ctctgttgcc caggctggag 60
tgcacaggca tgatctcggc tcaactacaac cctgcctcc catgtccaag cgattcttgt 120
gcctcagcct tccctgtagc tagaattaca ggcacatgcc accacaccca gctagttttt 180
gtatttttag tagagacagg gtttcaccat gttggccagg ctggtctcaa actcctnacc 240
tcagnngtca ggctggtctc aaactcctga cctcaagtga tctgcccacc tcagcctccc 300
aaagtgtan gattacaggc cgtgagcc 328

<210> 419
<211> 389
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(389)
<223> n = A,T,C or G

<400> 419
cctcctcaag acggcctgtg gtccgcctcc cggcaaccaa gaagcctgca gtgccatag 60

```

accctgagc catggactgg agcctgaaag gcagcgtaca cctgtctct gatcttgetg 120
cttgttttct ctctgtggct ccattcatag cacagttgtt gactgagge ttgtgcaggc 180
cgagcaaggc caagctggct caaagagcaa ccagtcaact ctgccacggt gtgccaggca 240
ccggttctcc agccaccaac ctactcgtct cccgcaaagt gcacatcagt tcttctaccc 300
taaaggtagg accaaagggc atctgctttt ctgaagtcct ctgctctatc agccatcacg 360
tggcagccac tcnggctgtg tcgacgcgg 389

```

<210> 420

<211> 408

<212> DNA

<213> Homo sapiens

<400> 420

```

gttctctcta actcctgcc aaacagctc tctcaacat gagagctgca cccctctctc 60
tggccagggc agcaagcctt agccttggct tcttgtttct gctttttttc tggctagacc 120
gaagtgtact agccaaggag ttgaagtttg tgactttggt gtttcggcat ggagaccgaa 180
gtccattga cacctttccc actgacccca taaaggaatc ctcatggcca caaggatttg 240
gccaaactcac ccagctgggc atggagcagc attatgaact tggagagtat ataagaaaga 300
gatatagaaa attcttgaat ggtcctata aacatgaaca gggttatatt cgaagcacag 360
acgttgaccg gactttgatg aagtgtatg acaaactgg caagcccg 408

```

<210> 421

<211> 352

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(352)

<223> n = A,T,C or G

<400> 421

```

gctcaaaaat ctttttactg atnggcatgg ctacacaatc attgactatt acggaggcca 60
gaggagaatg aggcctggcc tgggagccct gtgcctacta naagcacatt agattatcca 120
ttcactgaca gaacaggtct tttttgggtc cttcttctcc accacnata acttgcagtc 180
ctccttcttg aagattcttt ggcagttgtc tttgtcataa cccacaggtg tagaaacaag 240
ggtgcaacat gaaatttctg tttcgtagca agtgcagtc tcacaagttg gcangtctgc 300
cactccagat ttattgggtg tttgtttcct ttgagatcca tgcatttctc gg 352

```

<210> 422

<211> 337

<212> DNA

<213> Homo sapiens

<400> 422

```

atgccaccat gctggcaatg cagcgggcgg tcgaaggcct gcatatccag cccaagctgg 60
cgatgatcga cggcaaccgt tgcccgaagt tgccgatgcc agccgaagcg gtggtcaagg 120
gcgatagcaa ggtgccggcg atcgcgcgcg cgtcaatcct ggccaaggtc agccgtgatc 180
gtgaaatggc agctgtcgaa ttgatctacc cgggttatgg catcggcggg cataagggtc 240
atccgacacc ggtgcacctg gaagccttgc agcggctggg gccgacgccg attcaccgac 300
gcttcttccg ccggtacggc tggcctatga aaattat 337

```

<210> 423

<211> 310

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature
 <222> (1)...(310)
 <223> n = A,T,C or G

<400> 423
 gctcaaaaat ctttttactg atatggcatg gctacacaat cattgactat tagaggccag 60
 aggagaatga ggcctggcct gggagccctg tgccactan aagcncatta gattatccat 120
 tcactgacag aacaggtctt ttttgggtcc ttctctccca ccacgatata cttgcagtc 180
 tccttcttga agattctttg gcagttgtct ttgtcataac ccacaggtgt anaaacaagg 240
 gtgcaacatg aaatttctgt ttcgtagcaa gtgcatgtct cacagttgtc aagtctgccc 300
 tccgagttta 310

<210> 424
 <211> 370
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)...(370)
 <223> n = A,T,C or G

<400> 424
 gctcaaaaat ctttttactg ataggcatgg ctacacaatc attgactatt agaggccaga 60
 ggagaatgag gcctggcctg ggagccctgt gcctactaga agcacattag attatccatt 120
 cactgacaga acaggtcttt tttgggtcct tctctccac cacgatatac ttgcagtcct 180
 ccttcttgaa gattctttgg cagttgtctt tgtcataacc cacaggtgta gaaacatcct 240
 gggtgaatct cctggaactc cctcattagg tatgaaatag catgatgcat tgcataaagt 300
 cacgaagggtg gcaaagatca caacgctgcc cagganaaca ttcattgtga taagcaggac 360
 tccgtcgacg 370

<210> 425
 <211> 216
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)...(216)
 <223> n = A,T,C or G

<400> 425
 aattgctatn ntattttttg ccactcaaaa taattaccaa aaaaaaaaaa tnttaaataga 60
 taacaacnca acatcaagg aaananaaca ggaatggntg actntgcata aatnggccga 120
 anattatcca ttatnttaag gggtgacttc aggnacagc acacagacaa acatgcccag 180
 gaggnntntca ggaccgctcg atgntntntg agggagg 216

<210> 426
 <211> 596
 <212> DNA
 <213> Homo sapiens

<400> 426
 cttccagtgga ggataaccct gttgccccgg gccgaggttc tccattaggc tctgattgat 60
 tggcagtcag tgatggaagg gtgttctgat cattccgact gcccgaaggg tcgctggcca 120
 gctctctgtt ttgctgagtt ggcagtagga cctaatttgt taattaagag tagatggtga 180
 gctgtccttg tattttgatt aacctaattg ccttcccagc acgactcgga ttcagctgga 240
 gacatcacgg caacttttaa tgaaatgatt tgaagggcca ttaagaggca cttcccgtta 300

```

ttaggcagtt catctgcact gataacttct tggcagctga gctggtcgga gctgtggccc 360
aaacgcacac ttggcttttg gttttgagat acaactctta atcttttagt catgcttgag 420
gggtggatggc cttttcagct ttaacccaat ttgcactgcc ttggaagtgt agccaggaga 480
atacactcat atactcgtgg gcttagaggc cacagcagat gtcattggtc tactgcctga 540
gtccccgtgg tcccatccca ggaccttcca tcggcgagta cctgggagcc cgtgct 596

```

```

<210> 427
<211> 107
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc_feature
<222> (1) ... (107)
<223> n = A,T,C or G

```

```

<400> 427
gaagaattca agttaggttt attcaaaggg cttacngaga atcctanacc caggnccccag 60
ccccggagca gccttanaga gtcctgttt gactgcccg ctcagng 107

```

```

<210> 428
<211> 38
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc_feature
<222> (1) ... (38)
<223> n = A,T,C or G

```

```

<400> 428
gaacttcna anaangactt tattcactat tttacatt 38

```

```

<210> 429
<211> 544
<212> DNA
<213> Homo sapiens

```

```

<400> 429
ctttgctgga cggaataaaa gtggacgcaa gcatgacctc ctgatgaggg cgctgcattt 60
attgaagagc ggctgcagcc ctgcggttca gattaaaatc cgagaattgt atagacgccg 120
atatccacga actcttgaag gactttctga tttatccaca atcaaatcat cggttttcag 180
tttggtggtt ggctcatcac ctgtagaacc tgacttggcc gtggctggaa tccactcgtt 240
gccttccact tcagttacac ctcaactcacc atcctctcct gttggttctg tgetgcttca 300
agatactaag cccacatttg agatgcagca gccatctccc ccaattcctc ctgtccatcc 360
tgatgtgcag ttaaaaaatc tgccctttta tgatgtcctt gatgttctca tcaagcccac 420
gagtttagtt caaagcagta ttcagcgatt tcaagagaag ttttttattt ttgctttgac 480
acctcaacaa gttagagaga tatgcatatc cagggatttt ttgccaggtg gtaggagaga 540
ttat 544

```

```

<210> 430
<211> 507
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc_feature
<222> (1) ... (507)

```

<223> n = A,T,C or G

<400> 430

```

cttatcncaa tggggctccc aaacttggt gtgcagtgga aactccggg gaattttgaa 60
gaacactgac acccatcttc caccctgaca ctctgattta attgggctgc agtgagaaca 120
gagcatcaat ttaaaaagct gcccagaatg ttntcctggg cagcgttggt atctttgccn 180
ccttcgtgac tttatgcaat gcatcatgct atttcatacc taatgaggga gttccaggag 240
attcaaccag gatgtttcta cncctgtggg ttatgacaaa gacaactgcc aaagaatntt 300
caagaaggag gactgcaagt atatcgtggg ggagaagaag gacccaaaaa agacctgttc 360
tgtcagtga tggataatct aatgtgcttc tagtaggcac agggctccca ggccaggcct 420
cattctctc tggcctctaa tagtcaatga ttgtgtagcc atgcctatca gtaaaaagat 480
ttttgagcaa aaaaaaaaaa aaaaaaa

```

507

<210> 431

<211> 392

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(392)

<223> n = A,T,C or G

<400> 431

```

gaaaattcag aatggataaa aacaaatgaa gtacaaaata tttcagattt acatagcgat 60
aaacaagaaa gcacttatca ggaggactta caaatggaag tacactctan aaccatcatc 120
tatcatggct aaatgtgaga ttagcacagc tgtattattt gtacattgca aacacctaga 180
aagagatggg aaacaaaatc ccaggagttt tgtgtgtgga gtccctgggt ttccaacaga 240
catcattcca gcattctgag attagggnga ttggggatca ttctggagtt ggaatgttca 300
acaaaagtga tgttgttagg taaaatgtac aacttctgga tctatgcaga cattgaaggt 360
gcaatgagtc tggcttttac tctgctgttt ct

```

392

<210> 432

<211> 387

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(387)

<223> n = A,T,C or G

<400> 432

```

ggtatccta cataatcaaa tatagctgta gtacatgttt tcattggngt agattaccac 60
aaatgcaagg caacatgtgt agatctcttg tcttattctt ttgtctataa tactgtattg 120
ngtagtccaa gctctcgga gtccagccac tngaaacat gctcccttta gattaacctc 180
gtggacnctn ttgttgnatt gtctgaactg tagngcctg tatcttgctt ctgtctgnga 240
attctgttgc ttctggggca ttctctgng atgcagagga ccaccacaca gatgacagca 300
atctgaattg ntccaatcac agctgcgatt aagacatact gaaatcgtac aggaccggga 360
acaacgtata gaacactgga gtccttt

```

387

<210> 433

<211> 281

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1) ... (281)

<223> n = A,T,C or G

<400> 433

```

ttcaactagc anagaanact gcttcagggn gtgtaaaatg aaaggcttcc acgcagttat 60
ctgattaaag aacactaaga gagggacaag gctagaagcc gcaggatgtc tacactatag 120
caggcnctat ttgggttggc tggaggagct gtggaaaaca tggagagatt ggcgctggag 180
atcgccgtgg ctattcctcn ttgntattac accagnagg ntctctgtnt gccactggg 240
tnnaaaaccg ntatacaata atgatagaat aggacacaca t 281

```

<210> 434

<211> 484

<212> DNA

<213> Homo sapiens

<400> 434

```

ttttaaaata agcatttagt gctcagtccc tactgagtac tctttctctc cctcctctg 60
aatttaattc tttcaacttg caatttgcaa ggattacaca tttcactgtg atgtatattg 120
tggtgcaaaa aaaaaaaagt gtctttgttt aaaattactt ggtttgtgaa tccatcttgc 180
tttttcccca ttggaactag tcattaaccc atctctgaac tggtagaaaa acatctgaag 240
agctagtcta tcagcatctg acagggtgaat tggatgggtc tcagaacccat ttcacccaga 300
cagcctgttt ctatcctgtt taataaatta gtttgggttc tctacatgca taacaaaccc 360
tgctccaatc tgtcacataa aagtctgtga cttgaagttt agtcagcacc cccaccaaac 420
tttatttttc tatgtgtttt ttgcaacata tgagtgtttt gaaaataaag taccatgtc 484
ttaa

```

<210> 435

<211> 424

<212> DNA

<213> Homo sapiens

<400> 435

```

gcgcgcgtca gaggcaggta ctttctgcct tccacgtcct ccttcaagga agccccatgt 60
gggtagcttt caatatcgca gggtcttact cctctgcctc tataagctca aaccaccaa 120
cgatcgggca agtaaaccce ctccctcgcc gacttcggaa ctggcgagag ttcagcgag 180
atgggcctgt ggggaggggg caagatagat gagggggagc ggcattgtgc ggggtgaccc 240
cttgagagga ggaanaaggc cacaagaggg gctgccaccg cactaacgg agatggccct 300
ggtagagacc tttgggggtc tggaaacctt ggactcccca tgctctaact cccacactct 360
gctatcagaa acttaaaactt gaggattttc tctgtttttc actcgcaata aattcagagc 420
aaac

```

<210> 436

<211> 667

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1) ... (667)

<223> n = A,T,C or G

<400> 436

```

accttgggaa nactctcaca atataaaggg tcgtagactt tactccaaat tccaaaaagg 60
tcctggccat gtaatcctga aagttttccc aaggtagcta taaaatcctt ataaggggtc 120
agcctcttct ggaattcttc tgatttcaaa gtctcactct caagttcttg aaaacgaggg 180
cagttcctga aaggcaggta tagcaactga tcttcagaaa gaggaactgt gtgcaccggg 240
atgggctgcc agagtaggat aggattccag atgctgacac cttctggggg aaacagggct 300
gccagggttg tcatagcact catcaaagtc cgggtcaacgt ctgtgcttcg aatataaacc 360

```

```

tgttcatggt tataggactc attcaagaat tttctatatc tctttcttat atactctcca 420
agttcataat gctgctccat gccagctgg gtgagttggc caaatccttg tggccatgag 480
gattccttta tggggtcagt gggaaagggt tcaatgggac ttcggtctcc atgccgaaac 540
accaaagtca caaacttcaa ctccttgggt agtacacttc ggtctagcca gaaaaaaagc 600
agaaacaaga agccaaggct aaggcttgct gccctgccag gaggaggggt gcagctctca 660
tgttgag 667

```

<210> 437

<211> 693

<212> DNA

<213> Homo sapiens

<400> 437

```

ctacgtctca accctcattt ttaggtaagg aatcttaagt ccaaagatat taagtgactc 60
acacagccag gtaaggaaag ctggattggc acactaggac tctaccatac cgggttttgt 120
taaagctcag gttaggaggc tgataagctt ggaagggaact tcagacagct ttttcagatc 180
ataaaagata attcttagcc catgttcttc tccagagcag acctgaaatg acagcacagc 240
agggtactcct ctattttcac cctcttgct tctactctct ggcagtcaga cctgtgggag 300
gccatgggag aaagcagctc tctggatggt tgtacagatc atggactatt ctctgtggac 360
catttctcca ggttacccta ggtgtcacta ttgggggggac agccagcatc tttagctttc 420
atgtgagttt ctgtctgtct tcagtagagg aaacttttgc tcttcacact tcacatctga 480
acacctaact gctgttgctc ctgaggtggg gaaagacaga tatagagctt acagtattta 540
tcttatttct aggcactgag ggctgtggg taccttgttg tgccaaaaca gatcctgttt 600
taaggacatg ttgcttcaga gatgtctgta actatctggg ggctctgttg gctctttacc 660
ctgcatcatg tgctctcttg gctgaaaatg acc 693

```

<210> 438

<211> 360

<212> DNA

<213> Homo sapiens

<400> 438

```

ctgcttatca caatgaatgt tctcctgggc agcgttgtga tctttgccac cttegtgact 60
ttatgcaatg catcatgcta tttcatacct aatgaggagg ttccaggaga ttcaaccagg 120
atgtttctac acctgtgggt tatgacaaag acaactgcc aagaatcttc aagaaggagg 180
actgcaagta tatctggtgg agaagaagga cccaaaaaag acctgttctg tcagtgaatg 240
gataatctaa tgtgcttcta gtaggcacag ggctcccagg ccaggcctca ttctcctctg 300
gcctctaata gtcaataatt gtgtagccat gcctatcagt aaaaagattt ttgagcaaac 360

```

<210> 439

<211> 431

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(431)

<223> n = A,T,C or G

<400> 439

```

gttctnnta actcctgcc aaaaacagctc tctcaacat gagagctgca cccctcctcc 60
tggccagggc agcaagcctt agccttggt tcttgtttct gcttttttct tggctagacc 120
gaagtgtact agccaaggag ttgaagtttg tgactttggt gtttcggcat ggagaccgaa 180
gtcccattga cacttttccc actgacccca taaaggaaat ctcattggcca caaggatttg 240
gccaactcac ccagctgggc atggagcagc attatgaact tggagagtat ataagaaaga 300
gatatagaaa attcttgaat gagtcttata aacatgaaca ggtttatatt cgaagcacag 360
acgttgaccg gactttgatg agtgctatga caaacctggc agcccgtcga cgcgcccgcg 420
aatttagtag t 431

```


<210> 440
<211> 523
<212> DNA
<213> Homo sapiens

<400> 440
agagataaag cttagggtcaa agttcataga gttcccatga actatatgac tggccacaca 60
ggatccttttg tatttaagga ttctgagatt ttgcttgagc aggattagat aaggctgttc 120
tttaaagtgc tgaaatggaa cagatttcaa aaaaaaaccc cacaatctag ggtgggaaca 180
aggaaggaaa gatgtgaata ggctgatggg caaaaaacca atttaccat cagttccagc 240
cttctctcaa ggagaggcaa agaaaggaga tacagtggag acatctggaa agttttctcc 300
actggaaaac tgctactatc tgtttttata tttctgttaa aatatatgag gctacagaac 360
taaaaattaa aacctctttg tgtcccttgg tcttgggaaca tttatgttcc ttttaaagaa 420
acaaaaatca aactttacag aaagatttga tgtatgtaat acatatagca gctcttgaag 480
tatatatatc atagcaaata agtcatctga tgagaacaag cta 523

<210> 441
<211> 430
<212> DNA
<213> Homo sapiens

<400> 441
gttcctccta actcctgcc a gaaacagctc tctcaacat gagagctgca cccctcctcc 60
tggccagggc agcaagcctt agccttggtc tcttgcttct gcttttttcc tggctagacc 120
gaagtgtact agccaaggag ttgaagtttg tgactttggt gtttcggcat ggagaccgaa 180
gtcccatgta cacctttccc actgacccca taaaggaatc ctcatggcca caaggatttg 240
gccaactcac ccagctgggc atggagcagc attatgaact tggagagtat ataagaaaga 300
gatatagaaa attcttgaat gagtcctata aacatgaaca ggtttatatt cgaagcacag 360
acgttgaccg gactttgatg agtgctatga caaacctggc agcccgtcga cgcgccgcgcg 420
aatttagtag 430

<210> 442
<211> 362
<212> DNA
<213> Homo sapiens

<400> 442
ctaaggaatt agtagtggtc ccatcacttg tttggagtgt gctattctaa aagattttga 60
tttcttgga tgacaattat attttaactt tgggtgggga aagagttata ggaccacagt 120
cttcacttct gatacttgta aattaatctt ttattgcact tgttttgacc attagctat 180
atgttttagaa atggtcattt tacggaaaaa ttagaataat tctgataata gtgcagaata 240
aatgaattaa tgttttactt aatttatatt gaactgtcaa tgacaaataa aaattctttt 300
tgattatttt ttgttttcat ttaccagaat aaaaactaag aattaaaagt ttgattacag 360
tc 362

<210> 443
<211> 624
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(624)
<223> n = A,T,C or G

<400> 443
ttttttttt gcaacacaat atacatcaca gtgaaatgtg taatccttgc aaattgcaag 60

```

ttgaaagaat taaattcaga ggaggggaga gaaagagtag tcagtaggga ctgagcacta 120
aatgcttatt ttaaaagaaa tgtaaagagc agaaagcaat tcaggctacc ctgccttttg 180
tgctggctag tactccggtc ggtgtcagca gcacgtggca ttgaacattg caatgtggag 240
cccaaaccac agaaaatggg gtgaaattgg ccaactttct attacttgg cttcctgttt 300
tataaaatat tgtgaataat atcacctact tcaaagggca gttatgaggc ttaaataaac 360
taacgcctac aaaacactta aacatagata acataggtgc aagtactatg tatctggtac 420
atggtaaaca tccttattat taaagtcaac gctaaaatga atgtgtgtgc atatgcta 480
agtacagaga gagggcactt aaaccaacta agggcctgga gggaagggtt cctggaaaga 540
ngatgcttgt gctgggtcca aatcttggtc tactatgacc ttggccaaat tatttaaact 600
ttgtccctat ctgctaaaca gatc 624

```

<210> 444

<211> 425

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(425)

<223> n = A,T,C or G

<400> 444

```

gcacatcatt nntcttgcatt tctttgagaa taagaagatc agtaaatagt tcagaagtgg 60
gaagctttgt ccaggcctgt gtgtgaaccc aatgttttgc ttagaataag aacaagtaag 120
ttcattgcta tagcataaca caaaatttgc ataagtgttg gtcagcaaat ccttgaatgc 180
tgcttaatgt gagagggttg taaaatcctt tgtgcaacac tctaactccc tgaatgtttt 240
gctgtgctgg gacctgtgca tgccagacaa ggccaagctg gctgaaagag caaccagcca 300
cctctgcaat ctgccacctc ctgctggcag gatttgtttt tgcattcctg gaagagccaa 360
ggaggcacca gggcataagt gagtagactt atggtcgcag cggccgcgaa ttagtagtag 420
gtaga 425

```

<210> 445

<211> 414

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(414)

<223> n = A,T,C or G

<400> 445

```

catgtttatg nttttggatt actttgggca cctagtgttt ctaaactcgtc tatcattctt 60
ttctgttttt caaaagcaga gatggccaga gtctcaacaa actgtatctt caagtctttg 120
tgaaattctt tgcattgtggc agattatttg atgtagtttc ctttaactag catataaact 180
tggtgtgttt cagataaatg aacagcaaaa tgtggtggaa ttaccatttg gaacattgtg 240
aatgaaaaat tgtgtctcta gattatgtaa caaataacta ttctctaacc attgatcttt 300
ggatttttat aatcctactc acaaatgact aggtctctcc tcttgatttt tgaagcagtg 360
tgggtgctgg attgataaaa aaaaaaaaag tcgacgcggc cgcgaaattta gtag 414

```

<210> 446

<211> 631

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(631)

<223> n = A,T,C or G

<400> 446

```
acaaattaga anaaagtgcc agagaacacc acataccttg tccggaacat tacaatggct 60
tctgcatgca tgggaagtgt gagcattcta tcaatatgca ggagccatct tgcagggtgtg 120
atgctgggta tactggacaa cactgtgaaa aaaaggacta cagtgttcta tacgttggtc 180
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cagtattata gacaaaagaa taagacaaga gatctacaca tgttgccctg catttggtgg 540
aatctacacc aatgaaaaca tgtactacag ctatatattga ttatgtatgg atatatttga 600
aatagtatac attgtcttga tgttttttct g                                     631
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<210> 447

<211> 585

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(585)

<223> n = A,T,C or G

<400> 447

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cctggccatg taatcctgaa agttttccca aggtagctat aaaatcctta taagggtgca 120
gcctcttctg gaattcctct gatttcaaag tctcactctc aagttcttga aaacgagggc 180
agttcctgaa aggcaggtat agcaactgat cttcagaaag aggaactgtg tgcaccggga 240
tgggctgcca gagtaggata ggattccaga tgctgacacc ttctggggga aacagggctg 300
ccagggttgt catagcactc atcaaagtcc ggtcaacgtc tgtgcttcga atataaacct 360
gttcattgtt ataggactca ttcaagaatt ttctatatct ctttcttata tactctccaa 420
gttcataatg ctgctccatg cccagctggg tgagttggcc aaatccttgt ggccatgagg 480
attcctttat ggggtcagtg ggaaagggtg caatgggact tcggtctcca tgccgaaaca 540
ccaaagtcac aaacttcaac tccttggcta gtacacttcg gtcta                                     585
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<210> 448

<211> 93

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(93)

<223> n = A,T,C or G

<400> 448

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ggctccctag tgccctggag agganggggc tag                                     93
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<210> 449

<211> 706

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(706)

<223> n = A,T,C or G

<400> 449

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ttctgancac cgaactgacc atgccagccc tgccgatggt cctccatggc tccctagtgc 120
cctggagagg aggtgtctag tcagagagta gtcctggaag gtggcctctg ngaggagcca 180
cggggacagc atcctgcaga tggtcgggag cgteccattc gccattcagg ctgcgcaact 240
gttgggaagg gcgatcggtg cgggcctctt cgctattacg ccagctggcg aaagggggat 300
gtgctgcaag gcgattaagt tgggtaacgc caggggttttc ccagtcncga cgttgtaaaa 360
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cgtacgtaag cttggatcct cttagagcggc cgcctactac tactaaattc gcggccgcgt 480
cgacgtggga tccnactga gagagtggag agtgacatgt gctggacnct gtccatgaag 540
cactgagcag aagctggagg cacaacgcnc cagacactca cagctactca ggaggctgag 600
aacaggttga acctgggagg tggaggttgc aatgagctga gatcaggccn ctgcncceca 660
gcatggatga cagagtgaag ctccatctta aaaaaaaaaa aaaaaa 706
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<210> 450

<211> 493

<212> DNA

<213> Homo sapiens

<400> 450

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acagttttta aaggtaaaac aacataaaaa gaaatatcct atagtggaaa taagagagtc 120
aaatgaggct gagaacttta caaagggatc ttacagacat gtcgccaata tcaactgcatg 180
agcctaagta taagaacaac ctttggggag aaaccatcat ttgacagtga ggtacaattc 240
caagtcagggt agtgaatgg gtggaattaa actcaaatta atcctgccag ctgaaacgca 300
agagacactg tcagagagtt aaaaagttag ttctatccat gaggtgattc cacagtcttc 360
tcaagtcaac acatctgtga actcacagac caagttctta aaccactggt caaactctgc 420
tacacatcag aatcacctgg agagctttac aaactcccat tgccgagggg cgacgcggcc 480
gcgaatttag tag 493
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<210> 451

<211> 501

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(501)

<223> n = A,T,C or G

<400> 451

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ctcttcgcta ttacgccagc tggcgaaagg gggatgtgct gcaagggcat taagttgggt 120
aacgccaggg ttttcccagt cncgacgttg taaaacgacg gccagtgaat tgaatttagg 180
tgacnctata gaagagctat gacgtcgcat gcacgcgtac gtaagcttgg atcctctaga 240
gcggccgcct actactacta aattcgcgcc cgcgtcgacg tgggatccnc actgagagag 300
tggagagtga catgtgctgg acnctgtcca tgaagcactg agcagaagct ggaggcacia 360
cgcncacagc actcacagct actcaggagg ctgagaacag gttgaacctg ggaggtggag 420
gttgcaatga gctgagatca ggccnctgcn cccagcatg gatgacagag tgaaactcca 480
tcttaaaaaa aaaaaaaaaa a 501
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<210> 452

<211> 51

<212> DNA

<213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)...(51)
 <223> n = A,T,C or G

<400> 452
 agacgggttc accnttataa cnccttttag gatgggnntt ggggagcaag c 51

<210> 453
 <211> 317
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)...(317)
 <223> n = A,T,C or G

<400> 453
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 acatctgaag agctagtcta tcagcatctg gcaagtgaat tggatgggtc tcagaaccat 120
 ttcacccana cagcctgttt ctatcctgtt taataaatta gtttgggttc tctacatgca 180
 taacaaaccc tgctccaatc tgtcacataa aagtctgtga cttgaagttt antcagcacc 240
 cccaccaaac tttatttttc tatgtgtttt ttgcaacata tgagtgtttt gaaaataagg 300
 taccatgtc tttatta 317

<210> 454
 <211> 231
 <212> DNA
 <213> Homo sapiens

<400> 454
 ttcgaggtag aatcaactct cagagtgtag tttccttcta tagatgagtc agcattaata 60
 taagccacgc cagctcttg aaggagtctt gaattctcct ctgctcactc agtagaacca 120
 agaagaccaa attcttctgc atcccagctt gcaaacaaaa ttgttcttct aggtctccac 180
 ccttctttt tcagtgttcc aaagctcctc acaatttcat gaacaacagc t 231

<210> 455
 <211> 231
 <212> DNA
 <213> Homo sapiens

<400> 455
 taccaaagag ggcataataa tcagtctcac agtaggggtc accatcctcc aagtgaaaaa 60
 cattgttccg aatgggcttt ccacaggcta cacacacaaa acaggaaaca tgccaagttt 120
 gtttcaacgc attgatgact tctccaagga tcttcttttg gcatcgacca cattcagggg 180
 caaagaattt ctcatagcac agtcacaat acagggtcctc tttctcctct a 231

<210> 456
 <211> 231
 <212> DNA
 <213> Homo sapiens

<400> 456
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 ttccattcag tattatcggt attattcttg gagaaaccct gtctgtttac tgtaaccttt 120
 tgcactcaaa ttcttttatc aggaataact acatagccac tatttataaa gccattggaa 180

ccttttttatt tgggtgcagct gctagtcagt ccctgactga cattgccaag t 231

<210> 457
 <211> 231
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)...(231)
 <223> n = A,T,C or G

<400> 457
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 tatttgattt tattagcaat ctctttcaga agacccttga gatcattaag ctttgtatcc 180
 agttgtctaa atcgatgcct catttcctct gaggtgtcgc tggcttttgt g 231

<210> 458
 <211> 231
 <212> DNA
 <213> Homo sapiens

<400> 458
 aggtctgggt cccccactt ccaactccct ctactctctc taggactggg ctgggccaag 60
 agaagagggg tgggttagga agccgttgag acctgaagcc ccaccctcta ccttccttca 120
 acaccctaac cttgggtaac agcatttgga attatcattt gggatgagta gaatttccaa 180
 ggtectgggt taggcatttt ggggggccag accccaggag aagaagattc t 231

<210> 459
 <211> 231
 <212> DNA
 <213> Homo sapiens

<400> 459
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 ccttcgcgaa acctgtgggt gcccaccagt cctaacggga caggacagag agacagagca 120
 gccctgcact gtttccctc caccacagcc atcctgtccc tcattggctc tgtgctttcc 180
 actatacaca gtcaccgtcc caatgagaaa caagaaggag caccctccac a 231

<210> 460
 <211> 231
 <212> DNA
 <213> Homo sapiens

<400> 460
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 cccacctccc cacacgcaca cggccagcct ggagcccaca gaagggtcct cctgcagcca 180
 gtggagcttg gtccagcctc cagtccaccc ctaccaggct taaggataga a 231

<210> 461
 <211> 231
 <212> DNA
 <213> Homo sapiens

<400> 461
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gcgtgtgctc cagaagagtg tgtgcatgcc agaggggaaa caggcgccctg tgtgtccctgg 120
gtgggggttca gtgaggagtg ggaaattggg tcagcagaac caagccgttg ggtgaataag 180
aggggggattc catggcactg atagagccct atagtttcag agctgggaat t 231

<210> 462

<211> 231

<212> DNA

<213> Homo sapiens

<400> 462

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gaagaactgt tagagagacc aacagggttag tgggttagag atttcagag tcttacattt 180
tctagaggag gtattttaatt tcttctcact catccagtgt tgtatttagg a 231

<210> 463

<211> 231

<212> DNA

<213> Homo sapiens

<400> 463

tactccagcc tgggtgacaga gcgagaccct atcacgcgcc cccacccccc caaaaaaaaa 60
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catttgacag gtgtcttttc ctctggacct cgggtgtccc atctgagtga gaaaaggcag 180
tggggagggtg gatcttccag tcgaagcggg atagaagccc gtgtgaaaag c 231

<210> 464

<211> 231

<212> DNA

<213> Homo sapiens

<400> 464

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aaggacatca catatgaaga atgtttaagt tggagggtggc aacgtgaatt gcaaacaggg 120
cctgcttcag tgactgtgtg cctgtagtcc cagctactcg ggagtctgtg tgaggccagg 180
gggtgccagcg caccagctag atgctctgta acttctaggg cccattttcc c 231

<210> 465

<211> 231

<212> DNA

<213> Homo sapiens

<400> 465

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aggatggcac aatttttgct tgtgttcata atatactcag attagtccag ctccatcaga 180
taaactggag acatgcagga cattagggtg gtgtttagc tctggtaatg a 231

<210> 466

<211> 231

<212> DNA

<213> Homo sapiens

<400> 466

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cctgtgcaat caaatattgt ggagaattcc ctagtggag aagtcacaaa gactataggc 180
aataatggag accagtccca caagatgaca accagtcggt gtgtgcggct g 231

<210> 467
<211> 311
<212> DNA
<213> Homo sapiens

<400> 467
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gcatgggtct ctgcccgaagc tctgaatgag actatagcaa ggcggctgtg ggacgtcagt 240
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<210> 468
<211> 3112
<212> DNA
<213> Homo sapiens

<400> 468
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<210> 469

<211> 2229

<212> DNA

<213> Homo sapiens

<400> 469

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aatggaatt

2229

<210> 470

<211> 2426

<212> DNA

<213> Homo sapiens

<400> 470

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<211> 812

<212> DNA

<213> Homo sapiens

<400> 471

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<213> Homo sapiens

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<221> misc_feature

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<400> 472

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<210> 473

<211> 5829

<212> DNA

<213> Homo sapiens

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<210> 474

<211> 1594

<212> DNA

<213> Homo sapiens

<400> 474

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<211> 2414
 <212> DNA
 <213> Homo sapiens

<220>
 <221> unsure
 <222> (33)
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<400> 475
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<400> 476

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aaaaaaaaaa aaaa 3434

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His	Tyr	His	Arg	Asp	Thr	Asp	Thr	Arg	Arg	His	His	His	Met	Asp	Thr
			20					25					30		
Leu	Ser	His	Tyr	His	Arg	Asp	Thr	Arg	His	His	Thr	Val	Thr	Trp	Thr
		35					40					45			
His	His	His	Thr	His	Glu	His	Thr	Asp	Thr	Leu	Pro	Tyr	Gly	His	Trp
	50					55					60				
His	Thr	His	Cys	His	Thr	Val	Thr	Trp	Thr	His	Leu	His	Thr	Ile	Thr
	65				70					75					80
Pro	Pro	His	Thr	Leu	Pro	Val	Asp	Thr	Arg	Thr	His	Arg	His	Cys	His
				85					90					95	
Thr	Asp	Thr	Gln	Asn	Thr	Val	Thr	Arg	Arg	His	His	His	Ala	Asp	Thr
			100					105					110		
Pro	Pro	Leu	Trp	Cys	Arg	Leu	Asn	Tyr	Pro	Ala	Gly	Gly	Thr	Ala	Val
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<210> 478
<211> 143
<212> PRT
<213> Homo sapiens
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			20					25					30		
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		35					40					45			
His	Gly	Asp	Ile	Thr	Thr	Trp	Thr	His	Cys	His	Thr	Thr	Thr	Gly	Thr
	50					55					60				
Arg	Asp	Ile	Thr	Leu	Ser	His	Gly	His	Thr	Ile	Thr	His	Met	Asn	Thr
65					70					75					80
Pro	Thr	His	Cys	His	Met	Asp	Thr	Gly	Thr	His	Thr	Ala	Thr	Leu	Ser
				85				90						95	

His Gly His Thr Ser Thr Pro Ser His His His Thr His Cys Leu Trp
 100 105 110

Thr Gln Gly His Thr Asp Thr Val Thr Gln Ile His Lys Thr Leu Ser
 115 120 125

His Gly Asp Ile Thr Met Gln Ile His His His Ser Gly Ala Val
 130 135 140

<210> 479

<211> 222

<212> PRT

<213> Homo sapiens

<400> 479

Met Tyr Arg His Thr Glu Thr Leu Pro His Gly Asp Thr Val Thr Gln
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Ser His Glu His Thr Gly Ile Val Thr Trp Thr Asp Thr Gln Thr Tyr
 20 25 30

Gly Glu Ile Thr Leu Thr His His His Thr Ile Thr Gly Thr Gln Thr
 35 40 45

His Gly Asp Ile Thr Thr Trp Thr His Cys His Thr Thr Thr Gly Thr
 50 55 60

Arg Asp Ile Thr Leu Ser His Gly His Thr Ile Thr His Met Asn Thr
 65 70 75 80

Pro Thr His Cys His Met Asp Thr Ala Thr His Thr Ala Thr Leu Ser
 85 90 95

His Gly His Thr Ser Ile Pro Ser His His His Thr His Cys His Val
 100 105 110

Asp Thr Arg Thr His Arg His Cys His Thr Asp Thr Gln Asn Thr Val
 115 120 125

Thr Arg Arg His His His Ala Asp Thr Pro Pro His Gly His Ser Thr
 130 135 140

Arg His Ser Ala Thr Gln Ile His His His Thr Glu Met Arg Thr His
 145 150 155 160

Cys His Thr Asp Thr Thr Thr Ser Leu Pro His Phe His Val Ser Ala
 165 170 175

Gly Gly Val Gly Pro Thr Thr Leu Gly Ser Asn Arg Glu Ile Thr Trp
 180 185 190

Thr Tyr Ser Glu Gly Lys Ile Phe Phe Tyr Phe Leu Gly Asn Gln Ala
 195 200 205

Arg Leu Cys Leu Lys Lys Arg Lys Lys Lys Gln Tyr Thr Val
 210 215 220

<210> 480
 <211> 144
 <212> PRT
 <213> Homo sapiens

<400> 480
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 Cys Cys Leu Trp Gly Leu Gln Ser Leu Pro Gln Gly Ser Tyr Val Thr
 20 25 30
 Val Gly Phe Leu Val Val Lys Arg Gln Thr Ile Gly Arg Leu Glu Arg
 35 40 45
 Asp Phe Met Phe Lys Cys Arg Lys Gln Pro Gly Leu Pro Pro Ser Gly
 50 55 60
 Leu Cys Leu Leu Trp Pro Trp Pro Asn Leu Glu Phe Gly Arg Arg Gln
 65 70 75 80
 Asp Arg Leu Thr Trp Ser Ser Val Ser Val Ala Gly Val Cys Ala Cys
 85 90 95
 Arg Ala Arg Pro Gly Trp Leu Gly Glu Gln Pro Ala Thr Ser Ala Gly
 100 105 110
 Val Arg Leu Glu Gln Val Glu Gln Pro Pro Ala His Pro Leu Gln Glu
 115 120 125
 Ala Gly Val Ala Arg Phe Pro Arg Pro Glu Trp Val Pro Pro Asn Gly
 130 135 140

<210> 481
 <211> 167
 <212> PRT
 <213> Homo sapiens

<400> 481
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 5 10 15
 Ala Leu Ala Ala Thr Ser Ala Gly Val Arg Leu Glu Gly Val Asp Arg
 20 25 30
 Pro Pro Thr Leu Pro Ser Gln Gly Ser Gly Trp Pro Cys Ser His Ser
 35 40 45
 Leu Ser Gly Cys His Leu Met Ala Asp Gly Ala Lys Ala Leu Gly Lys
 50 55 60
 Ala Asp Gly Pro Trp Pro Tyr Leu Phe Val Arg Arg Thr Asp Val Pro

168

65		70		75		80									
Cys	Pro	Ala	Ala	Ser	Glu	Val	Gly	Gly	Cys	Ala	Pro	Ser	Ser	Trp	Arg
				85					90					95	
Ala	Leu	Ala	Glu	Val	Thr	Gly	Cys	Ser	Leu	Gly	Pro	Leu	Gly	Leu	Ala
			100					105					110		
Gln	His	Ala	Gln	Ala	Ser	Val	Leu	Leu	Leu	Cys	Tyr	Lys	Trp	Ser	His
		115					120					125			
Ile	Gly	Glu	Thr	Ser	Ser	His	Leu	Arg	Ser	Lys	Val	Tyr	Ala	Ala	Phe
	130					135					140				
Gly	Gly	Ser	Ser	Pro	Cys	Leu	Lys	Gly	Leu	Met	Ser	Leu	Trp	Ala	Ser
145					150					155					160
Trp	Leu	Ser	Arg	Gly	Arg	Pro									
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<210> 482

<211> 143

<212> PRT

<213> Homo sapiens

<400> 482

Met	Glu	Pro	Tyr	Arg	Gly	Asn	Lys	Lys	Gln	Val	Gln	Glu	Lys	Gly	Val
				5					10					15	
Pro	Cys	Leu	Trp	Gly	Ser	Ser	Pro	Cys	Leu	Arg	Cys	His	Met	Ala	Leu
			20					25					30		
Arg	Ala	Ser	Trp	Leu	Pro	Gly	Gly	Gly	Pro	Gln	Ala	Ile	Leu	Gly	Arg
		35					40					45			
Thr	Leu	Cys	Ser	Ser	Ala	Glu	Ser	Ser	Gln	Asp	Cys	His	Pro	Gly	Gly
	50					55					60				
Pro	Ser	Ile	Ala	Leu	Ala	Lys	Pro	Cys	Arg	Gly	Val	Trp	Leu	Leu	Phe
65					70					75					80
Glu	Pro	Ala	Trp	Pro	Pro	Trp	His	Ala	Arg	Ala	Pro	Gly	Ala	Gly	Thr
			85						90					95	
Leu	Leu	Arg	Val	Cys	Leu	Ser	Cys	Leu	Gly	Cys	His	Leu	Cys	Gly	Gly
			100					105					110		
Ala	Ser	Gly	Gly	Gly	Gly	Pro	Ala	Thr	Asn	Leu	Thr	Gln	Ser	Arg	Lys
		115					120					125			
Trp	Met	Ala	Met	Phe	Pro	Gln	Pro	Glu	Trp	Leu	Pro	Pro	Asp	Gly	
	130					135					140				

<210> 483

<211> 143

<212> PRT

<213> Homo sapiens

<400> 483

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Met Glu Thr Gln Arg Gly Asn Lys Gln Arg Ala Gln Glu Gln Gly Val
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Cys Cys Leu Trp Gly Ser Ser Pro Cys Leu Gly Ser Tyr Gly Thr Ala
      20              25              30
Gly Phe Leu Val Ala Lys Arg Arg Thr Thr Gly Leu Leu Glu Glu Asp
      35              40              45
Phe Thr Phe Lys Cys Arg Lys Gln Pro Lys Leu Pro Ser Met Arg Leu
      50              55              60
Ser Leu Leu Trp Pro Trp Arg Asp Leu Lys Phe Val Pro Arg Gln Asp
      65              70              75              80
Lys Leu Thr Arg Ser Ser Val Ser Val Ala Gly Ala Tyr Ala Cys Arg
      85              90              95
Ala Gly Pro Gly Trp Leu Lys Glu Gln Pro Ala Thr Ser Ala Arg Val
      100             105             110
Arg Leu Val Gln Ala Glu His Pro Pro Pro His Pro Leu Glu Glu Val
      115             120             125
Gly Met Ala Arg Phe Pro Gln Pro Glu Cys Leu Pro Pro Tyr Cys
      130             135             140

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<210> 484

<211> 30

<212> PRT

<213> Homo Sapien

<400> 484

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Thr Ala Ala Ser Asp Asn Phe Gln Leu Ser Gln Gly Gly Gln Gly Phe
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Ala Ile Pro Ile Gly Gln Ala Met Ala Ile Ala Gly Gln Ile
      20              25              30

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<210> 485

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 485

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31

<210> 486

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 486

gcgaattctc acgctgagta tttggcc

27

<210> 487

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 487

cccgaattct tagctgccca tccgaacgcc ttcac

36

<210> 488

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 488

gggaagcttc ttccccggct gcaccagctg tgc

33

<210> 489

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 489

Met Asp Arg Leu Val Gln Arg Phe Gly Thr Arg Ala Val Tyr Leu Ala

1

5

10

15

Ser Val Ala

<210> 490

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 490

Tyr Leu Ala Ser Val Ala Ala Phe Pro Val Ala Ala Gly Ala Thr Cys

1

5

10

15

Leu Ser His Ser

20

<210> 491

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 491

Thr Cys Leu Ser His Ser Val Ala Val Val Thr Ala Ser Ala Ala Leu
1 5 10 15
Thr Gly Phe Thr
20

<210> 492

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 492

Ala Leu Thr Gly Phe Thr Phe Ser Ala Leu Gln Ile Leu Pro Tyr Thr
1 5 10 15
Leu Ala Ser Leu
20

<210> 493

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 493

Tyr Thr Leu Ala Ser Leu Tyr His Arg Glu Lys Gln Val Phe Leu Pro
1 5 10 15
Lys Tyr Arg Gly
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<210> 494

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 494

Leu Pro Lys Tyr Arg Gly Asp Thr Gly Gly Ala Ser Ser Glu Asp Ser
1 5 10 15
Leu Met Ile Ser
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<210> 495

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 495

Asp Ser Leu Met Thr Ser Phe Leu Pro Gly Pro Lys Pro Gly Ala Pro
1 5 10 15
Phe Pro Asn Gly
20

<210> 496

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 496

Ala Pro Phe Pro Asn Gly His Val Gly Ala Gly Gly Ser Gly Leu Leu
1 5 10 15
Pro Pro Pro Pro Ala
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<210> 497

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 497

Leu Leu Pro Pro Pro Ala Leu Cys Gly Ala Ser Ala Cys Asp Val
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<210> 498

<211> 20

<212> PRT

<213> Artificial Sequence .

<220>

<223> Made in a lab

<400> 498

Asp Val Ser Val Arg Val Val Val Gly Glu Pro Thr Glu Ala Arg Val
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Val Pro Gly Arg
20

<210> 499

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 499

Arg Val Val Pro Gly Arg Gly Ile Cys Leu Asp Leu Ala Ile Leu Asp
 1 5 10 15
 Ser Ala Phe Leu
 20

<210> 500

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 500

Leu Asp Ser Ala Phe Leu Leu Ser Gln Val Ala Pro Ser Leu Phe Met
 1 5 10 15
 Gly Ser Ile Val
 20

<210> 501

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 501

Phe Met Gly Ser Ile Val Gln Leu Ser Gln Ser Val Thr Ala Tyr Met
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 Val Ser Ala Ala
 20

<210> 502

<211> 414

<212> DNA

<213> Homo Sapien

<220>

<221> misc_feature

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<223> n = A,T,C or G

<400> 502

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ctgtagagtt	tttggaatng	acctcagtag	caatgcaatg	agctgggtcc	gccagggtcc	180
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gaaaggccga	ttnatnattt	ccaaaacctn	gaccacgggtg	gatttgaaaa	tgaccagtcc	300
gacaaccgag	gacacggcca	cctatTTTTTg	tggcagaatg	aatactggta	atagtgggtg	360
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<210> 503

<211> 379

<212> DNA

<213> Homo Sapiens

<220>

<221> misc_feature

<222> (1) ... (379)

<223> n = A,T,C or G

<400> 503

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ttagtagtag	tggtagattt	tacgcgagct	gggcgaaagg	ccgattcacc	atttccaaaa	240
cctngaccac	ggtggatttg	aaaatcacca	gtttgacaac	cgaggacacg	gccacctatt	300
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<210> 504

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 504

Gly	Phe	Thr	Asn	Tyr	Thr	Asp	Phe	Glu	Asp	Ser	Pro	Tyr	Phe	Lys	Glu
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Asn	Ser	Ala													

<210> 505

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 505

Lys	Glu	Asn	Ser	Ala	Phe	Pro	Pro	Phe	Cys	Cys	Asn	Asp	Asn	Val	Thr
1				5					10					15	
Asn	Thr	Ala	Asn												
				20											

<210> 506

<211> 407

<212> DNA

<213> Homo Sapien

<400> 506

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accgtctctg	gattctccct	cagtagcaat	gcaatgatct	gggtccgcca	ggctccaggg	180
aaggggctgg	aatacatcgg	atacattagt	tatgggtgta	gcgcatacta	cgcgagctgg	240
gtgaaaggcc	gattcaccat	ctccaaaacc	tcgaccacgg	tggatctgag	aatgaccagt	300
ctgacaaccg	aggacacggc	cacctatttc	tgtgccagaa	atagtgattt	tagtggtatg	360
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<210> 507
 <211> 422
 <212> DNA
 <213> Homo Sapien

<400> 507
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 acagtctctg gattctccct cagcaactac gacctgaact ggggccgcca ggctccaggg 180
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 gcaaaaggcc gggtcaccat ctccaaaacc tcgaccaccg tggatctcaa gatcgccagt 300
 ccgacaaccg aggacacggc cacctatttc tgtgccagag ggtggaagtg cgatgagtct 360
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<210> 508
 <211> 411
 <212> DNA
 <213> Homo Sapiens

<220>
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<400> 508
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 aggggctgga atggatcgga atcattggta ctccctggga cacatactac gcgagggtggg 240
 cgaaaggccg attcaccatc tccaaaacct cgaccacggg gcatntgaaa atcnccagtc 300
 cgacaaccga ggacacggcc acctatttct gtgccagaga tcttcgggat ggtagtagta 360
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<210> 509
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 509
 Leu Cys Lys Phe Thr Glu Trp Ile Glu Lys Thr Val Gln Ala Ser
 1 5 10 15

<210> 510
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

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 Pro Glu Tyr Asn Arg Pro Leu Leu Ala Asn Asp Leu Met Leu Ile
 1 5 10 15

<210> 511
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 511

Tyr His Pro Ser Met Phe Cys Ala Gly Gly Gly Gln Asp Gln Lys
1 5 10 15

<210> 512
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 512

Asp Ser Gly Gly Pro Leu Ile Cys Asn Gly Tyr Leu Gln Gly Leu
1 5 10 15

<210> 513
<211> 15
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<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 513

Ala Pro Cys Gly Gln Val Gly Val Pro Asx Val Tyr Thr Asn Leu
1 5 10 15

<210> 514
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 514

Leu Cys Lys Phe Thr Glu Trp Ile Glu Lys Thr Val Gln Ala Ser
1 5 10 15

<210> 515
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 515
Met Val Glu Ala Ser Leu Ser Val Arg His Pro Glu Tyr Asn Arg
1 5 10 15

<210> 516
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
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<400> 516
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1 5 10 15

<210> 517
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 517
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1 5 10 15

<210> 518
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 518
Arg Ala Glu Pro Gly Thr Glu Ala Arg Arg His Tyr Asp Glu Gly
1 5 10 15

<210> 519
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 519
Arg Ala Glu Pro Gly Thr Glu Ala Arg Arg Asn Tyr Asp Glu Gly Cys
1 5 10 15
Gly

<210> 520
<211> 25
<212> PRT
<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 520

Val	Gly	Glu	Gly	Leu	Tyr	Gln	Gly	Val	Pro	Arg	Ala	Glu	Pro	Gly	Thr
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Glu	Ala	Arg	Arg	His	Tyr	Asp	Glu	Gly							
			20					25							

<210> 521

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 521

Ala	Pro	Phe	Pro	Asn	Gly	His	Val	Gly	Ala	Gly	Gly	Ser	Gly	Leu	Leu
1				5				10						15	
Pro	Pro	Pro	Pro	Ala											
				20											

<210> 522

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 522

Leu	Leu	Val	Val	Pro	Ala	Ile	Lys	Lys	Asp	Tyr	Gly	Ser	Gln	Glu	Asp
1				5					10					15	
Phe	Thr	Gln	Val												
			20												

<210> 523

<211> 254

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<220>

<221> VARIANT

<222> (1)...(254)

<223> Xaa = any amino acid

<400> 523

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Leu	Gly	Val	Ala	Gly	Ser	Leu	Val	Ser	Gly	Ser	Cys	Ser	Gln	Ile	Ile
			20					25					30		
Asn	Gly	Glu	Asp	Cys	Ser	Pro	His	Ser	Gln	Pro	Trp	Gln	Ala	Ala	Leu
			35					40					45		

Val Met Glu Asn Glu Leu Phe Cys Ser Gly Val Leu Val His Pro Gln
 50 55 60
 Trp Val Leu Ser Ala Thr His Cys Phe Gln Asn Ser Tyr Thr Ile Gly
 65 70 75 80
 Leu Gly Leu His Ser Leu Glu Ala Asp Gln Glu Pro Gly Ser Gln Met
 85 90 95
 Val Glu Ala Ser Leu Ser Val Arg His Pro Glu Tyr Asn Arg Pro Leu
 100 105 110
 Leu Ala Asn Asp Leu Met Leu Ile Lys Leu Asp Glu Ser Val Ser Glu
 115 120 125
 Ser Asp Thr Ile Arg Ser Ile Ser Ile Ala Ser Gln Cys Pro Thr Ala
 130 135 140
 Gly Asn Ser Cys Leu Val Ser Gly Trp Gly Leu Leu Ala Asn Gly Arg
 145 150 155 160
 Met Pro Thr Val Leu Gln Cys Val Asn Val Ser Val Val Ser Glu Glu
 165 170 175
 Val Cys Ser Lys Leu Tyr Asp Pro Leu Tyr His Pro Ser Met Phe Cys
 180 185 190
 Ala Gly Gly Gly Gln Xaa Gln Xaa Asp Ser Cys Asn Gly Asp Ser Gly
 195 200 205
 Gly Pro Leu Ile Cys Asn Gly Tyr Leu Gln Gly Leu Val Ser Phe Gly
 210 215 220
 Lys Ala Pro Cys Gly Gln Val Gly Val Pro Gly Val Tyr Thr Asn Leu
 225 230 235 240
 Cys Lys Phe Thr Glu Trp Ile Glu Lys Thr Val Gln Ala Ser
 245 250

<210> 524
 <211> 765
 <212> DNA
 <213> Homo sapien

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<210> 525
 <211> 254
 <212> PRT
 <213> Homo sapien

<400> 525
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 20 25 30
 Asn Gly Glu Asp Cys Ser Pro His Ser Gln Pro Trp Gln Ala Ala Leu

35	40	45
Val Met Glu Asn Glu Leu Phe Cys Ser Gly Val Leu Val His Pro Gln		
50	55	60
Trp Val Leu Ser Ala Ala His Cys Phe Gln Asn Ser Tyr Thr Ile Gly		
65	70	75
Leu Gly Leu His Ser Leu Glu Ala Asp Gln Glu Pro Gly Ser Gln Met		
85	90	95
Val Glu Ala Ser Leu Ser Val Arg His Pro Glu Tyr Asn Arg Pro Leu		
100	105	110
Leu Ala Asn Asp Leu Met Leu Ile Lys Leu Asp Glu Ser Val Ser Glu		
115	120	125
Ser Asp Thr Ile Arg Ser Ile Ser Ile Ala Ser Gln Cys Pro Thr Ala		
130	135	140
Gly Asn Ser Cys Leu Val Ser Gly Trp Gly Leu Leu Ala Asn Gly Arg		
145	150	155
Met Pro Thr Val Leu Gln Cys Val Asn Val Ser Val Val Ser Glu Glu		
165	170	175
Val Cys Ser Lys Leu Tyr Asp Pro Leu Tyr His Pro Ser Met Phe Cys		
180	185	190
Ala Gly Gly Gly Gln Asp Gln Lys Asp Ser Cys Asn Gly Asp Ser Gly		
195	200	205
Gly Pro Leu Ile Cys Asn Gly Tyr Leu Gln Gly Leu Val Ser Phe Gly		
210	215	220
Lys Ala Pro Cys Gly Gln Val Gly Val Pro Gly Val Tyr Thr Asn Leu		
225	230	235
Cys Lys Phe Thr Glu Trp Ile Glu Lys Thr Val Gln Ala Ser		
245	250	

<210> 526

<211> 963

<212> DNA

<213> Homo sapiens

<400> 526

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<210> 527

<211> 320

<212> PRT

<213> Homo sapiens

<400> 527

305

310

315

320

<210> 528
<211> 20
<212> DNA
<213> Homo Sapien

<400> 528
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20

<210> 529
<211> 20
<212> DNA
<213> Homo Sapien

<400> 529
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20

<210> 530
<211> 1852
<212> DNA
<213> Homo sapiens

<400> 530

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<210> 531
<211> 879

<212> DNA

<213> Homo sapiens

<400> 531

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<210> 532

<211> 292

<212> PRT

<213> Homo sapiens

<400> 532

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Met His Leu Ser Phe Pro Ala Phe Leu Pro Pro Trp Met Asp Arg Gly
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Ser Gly Lys Ser Asn Val Gly Thr Ser Gly Asp His Asn Asp Ser Ser
                    20                      25                      30

Val Lys Thr Leu Gly Ser Lys Arg Cys Lys Trp Cys Cys His Cys Phe
                    35                      40                      45

Pro Cys Cys Arg Gly Ser Gly Lys Ser Asn Val Val Ala Trp Gly Asp
                    50                      55                      60

Tyr Asp Asp Ser Ala Phe Met Asp Pro Arg Tyr His Val His Gly Glu
                    65                      70                      75                      80

Asp Leu Asp Lys Leu His Arg Ala Ala Trp Trp Gly Lys Val Pro Arg
                    85                      90                      95

Lys Asp Leu Ile Val Met Leu Arg Asp Thr Asp Val Asn Lys Arg Asp
                    100                     105                     110

Lys Gln Lys Arg Thr Ala Leu His Leu Ala Ser Ala Asn Gly Asn Ser
                    115                     120                     125

Glu Val Val Lys Leu Val Leu Asp Arg Arg Cys Gln Leu Asn Val Leu
                    130                     135                     140

Asp Asn Lys Lys Arg Thr Ala Leu Thr Lys Ala Val Gln Cys Gln Glu
                    145                     150                     155                     160

Asp Glu Cys Ala Leu Met Leu Leu Glu His Gly Thr Asp Pro Asn Ile
                    165                     170                     175

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Pro Asp Glu Tyr Gly Asn Thr Thr Leu His Tyr Ala Val Tyr Asn Glu
 180 185 190

Asp Lys Leu Met Ala Lys Ala Leu Leu Leu Tyr Gly Ala Asp Ile Glu
 195 200 205

Ser Lys Asn Lys His Gly Leu Thr Pro Leu Leu Leu Gly Ile His Glu
 210 215 220

Gln Lys Gln Gln Val Val Lys Phe Leu Ile Lys Lys Lys Ala Asn Leu
 225 230 235 240

Asn Ala Leu Asp Arg Tyr Gly Arg Thr Ala Leu Ile Leu Ala Val Cys
 245 250 255

Cys Gly Ser Ala Ser Ile Val Ser Pro Leu Leu Glu Gln Asn Val Asp
 260 265 270

Val Ser Ser Gln Asp Leu Glu Arg Arg Pro Glu Ser Met Leu Phe Leu
 275 280 285

Val Ile Ile Met
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<210> 533
 <211> 801
 <212> DNA
 <213> Homo sapiens

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<210> 534
 <211> 266
 <212> PRT
 <213> Homo sapiens

<400> 534
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 20 25 30

Leu Gln Ser Met Pro Gln Gly Ser Tyr Ala Thr Ala Arg Phe Leu Val
 35 40 45
 Ala Lys Arg Pro Thr Thr Gly His Leu Glu Lys Glu Phe Met Phe His
 50 55 60
 Cys Arg Lys Gln Pro Gly Ser Pro Ser Arg Gly Leu Gly Leu Leu Trp
 65 70 75 80
 Pro Trp Pro Asp Ile Glu Phe Val Pro Arg Gln Asp Lys Leu Thr Gln
 85 90 95
 Ser Ser Val Leu Val Pro Gln Ile Cys Ala Cys Gln Thr Arg Pro Asn
 100 105 110
 Trp Leu Asn Glu Gln Pro Ala Thr Ser Ala Gly Val Arg Leu Glu Glu
 115 120 125
 Val Asp Gln Pro Pro Thr Leu Pro Ser Gln Gly Ser Gly Trp Pro Cys
 130 135 140
 Ser His Ser Leu Ser Gly Cys His Leu Met Ala Asp Ile Ala Lys Ala
 145 150 155 160
 Leu Gly Lys Ala Asp Gly Pro Trp Pro Tyr Leu Phe Val Arg Arg Thr
 165 170 175
 Asp Val Pro Cys Pro Ala Ala Ser Glu Val Gly Gly Cys Ala Pro Ser
 180 185 190
 Ser Trp His Thr Leu Ala Glu Val Thr Gly Cys Ser Leu Ser Pro Leu
 195 200 205
 Ser Leu Ala Gln His Ala Gln Ala Ser Val Leu Leu Leu Cys Tyr Lys
 210 215 220
 Trp Ser His Ile Gly Glu Thr Ser Ser His Leu Arg Ser Lys Val Tyr
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<210> 535

<211> 6082

<212> DNA

<213> Homo sapiens

<400> 535

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 Gly Lys Met Val Gln Lys Gly Thr Tyr Thr Glu Phe Leu Lys Ser Gly
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 Asp Leu Thr Val Ile Gly Asp Arg Gly Thr Thr Leu Ser Gly Gly Gln
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 Lys Ala Arg Val Asn Leu Ala Arg Ala Val Tyr Gln Asp Ala Asp Ile
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 Tyr Leu Leu Asp Asp Pro Leu Ser Ala Val Asp Ala Glu Val Ser Arg
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 His Leu Phe Glu Leu Cys Ile Cys Gln Ile Leu His Glu Lys Ile Thr
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 Ile Leu Val Thr His Gln Leu Gln Tyr Leu Lys Ala Ala Ser Gln Ile
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660	665	670
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Gln Glu Leu Phe Asp Ala His Gln Asp Leu His Ser Glu Ala Trp Phe 885	890	895
Leu Phe Leu Thr Thr Ser Arg Trp Phe Ala Val Arg Leu Asp Ala Ile 900	905	910
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Thr Leu Met Gly Met Phe Gln Trp Cys Val Arg Gln Ser Ala Glu Val 945	950	955 960
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 980 985 990

Pro His Glu Gly Val Ile Ile Phe Asp Asn Val Asn Phe Met Tyr Ser
 995 1000 1005

Pro Gly Gly Pro Leu Val Leu Lys His Leu Thr Ala Leu Ile Lys Ser
 1010 1015 1020

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Gly Gln Arg Gln Leu Val Cys Leu Ala Arg Ala Ile Leu Arg Lys Asn
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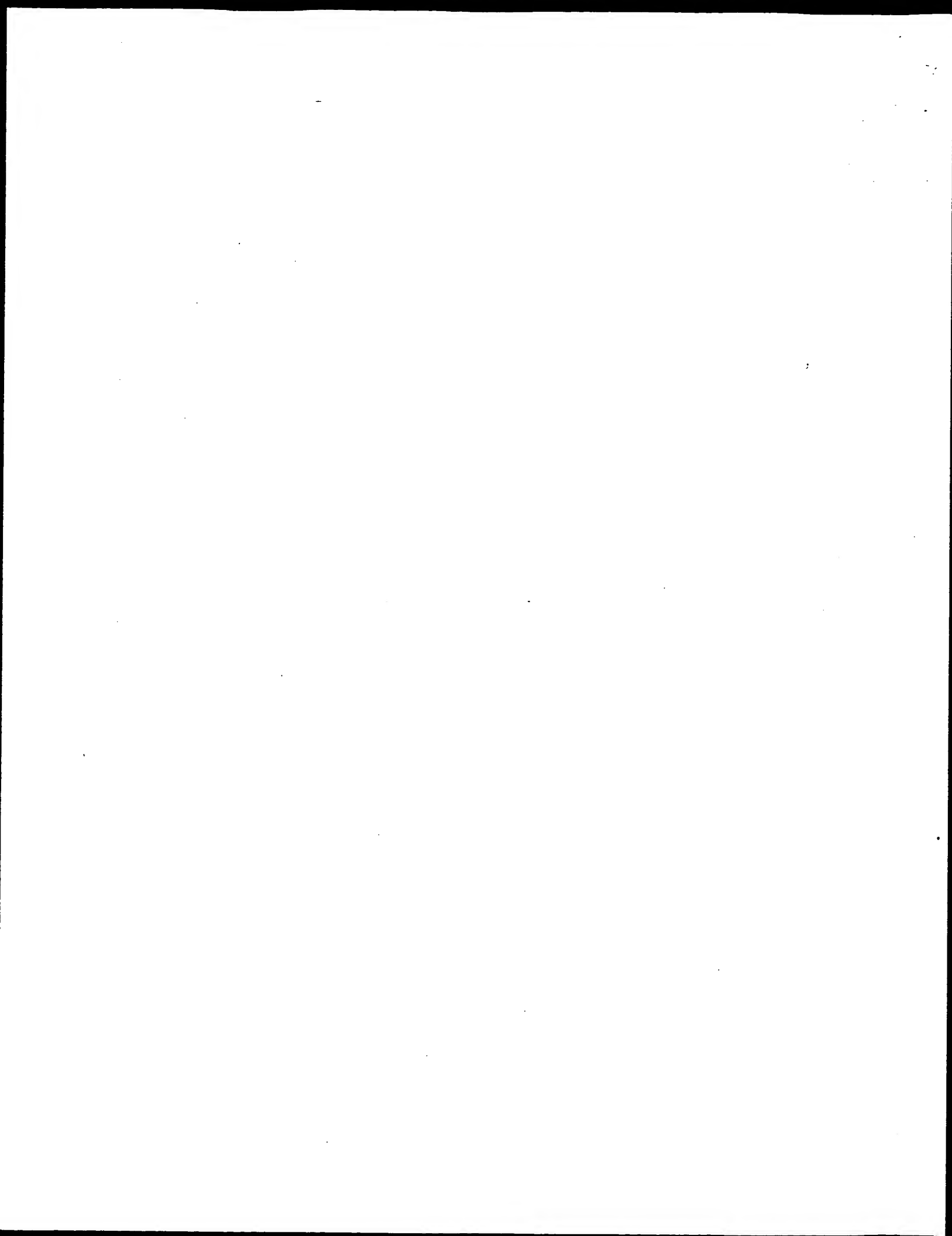
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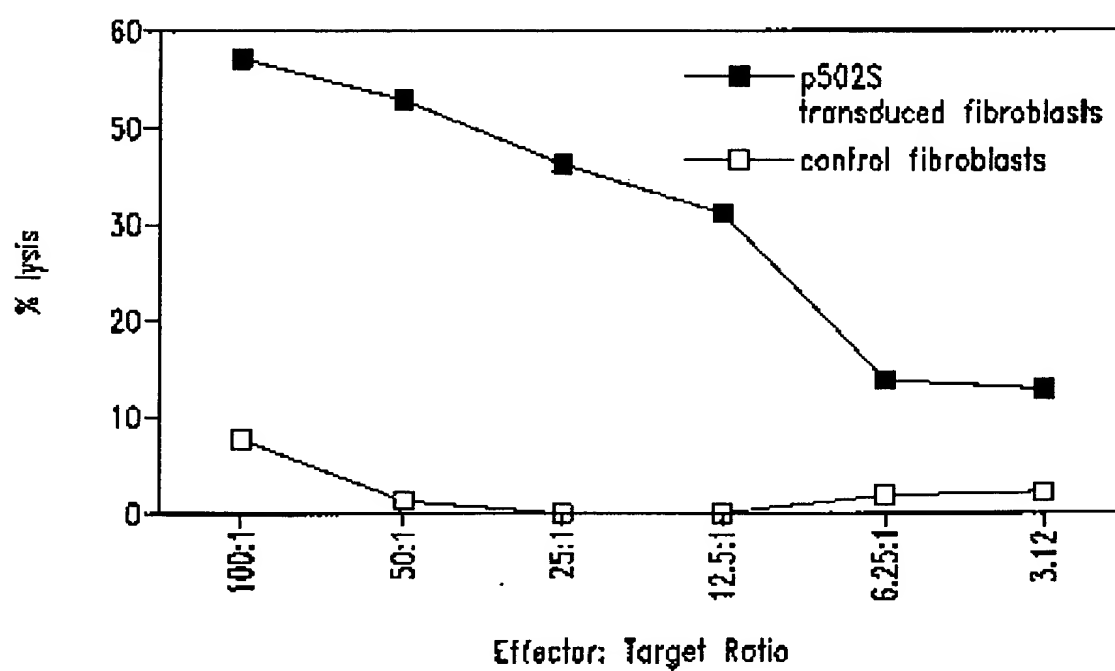
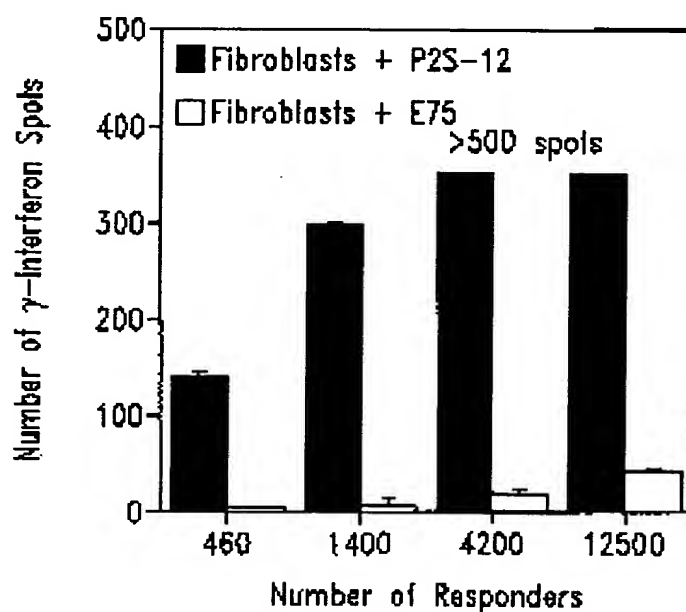
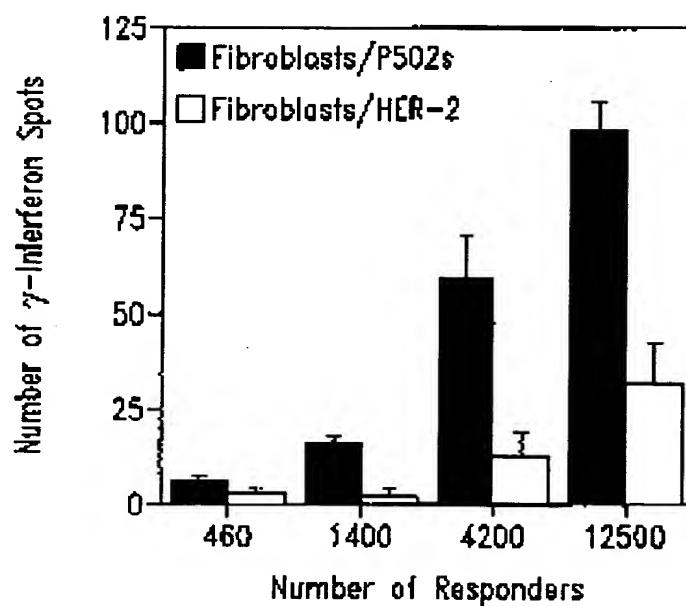


Fig. 1

*Fig. 2A**Fig. 2B*

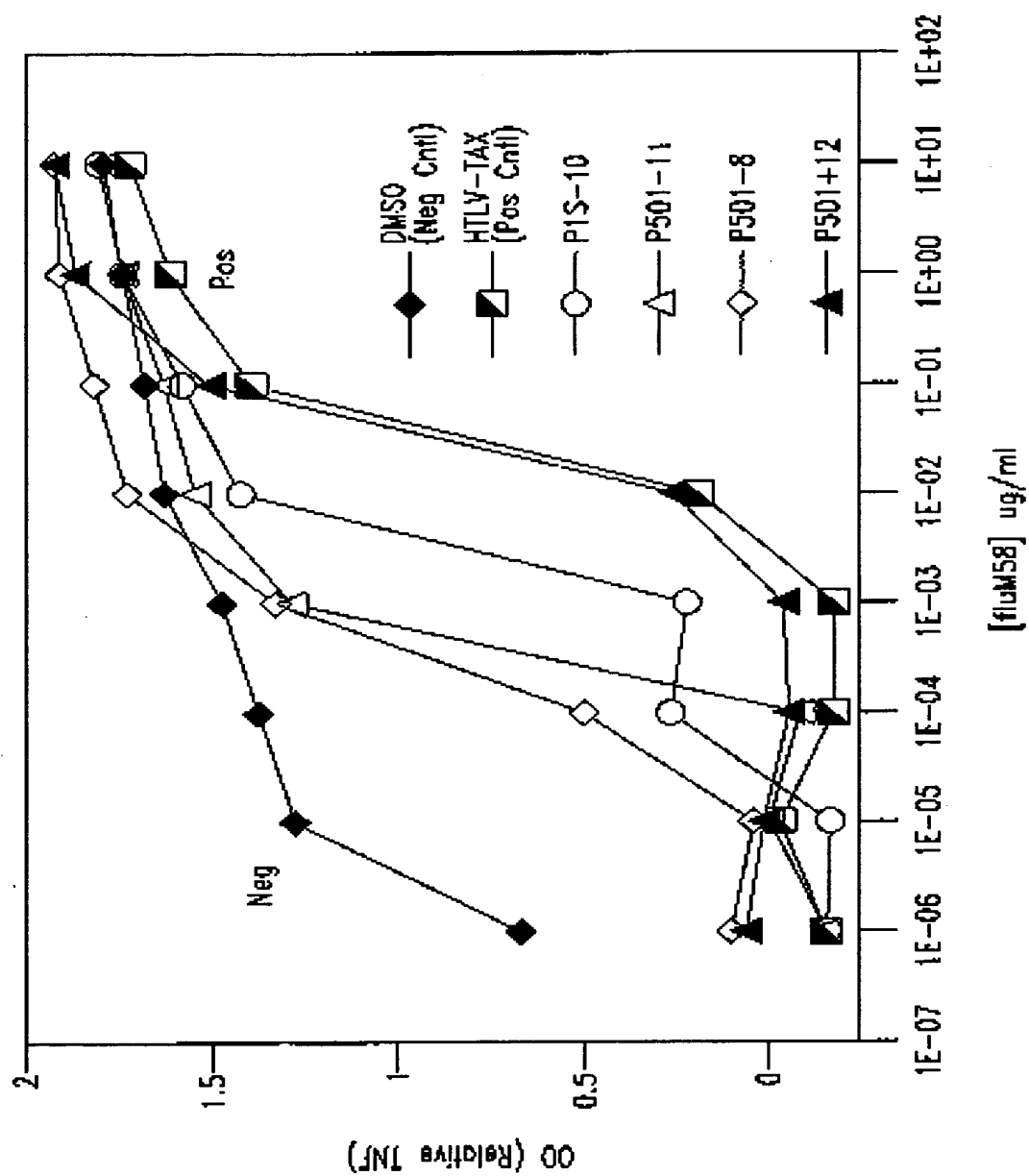
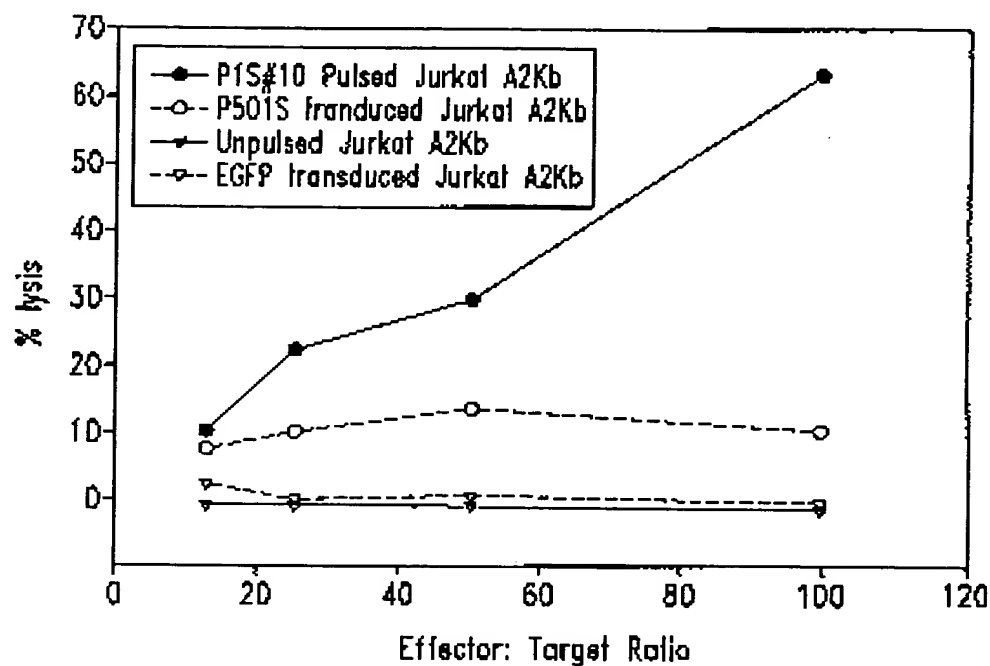
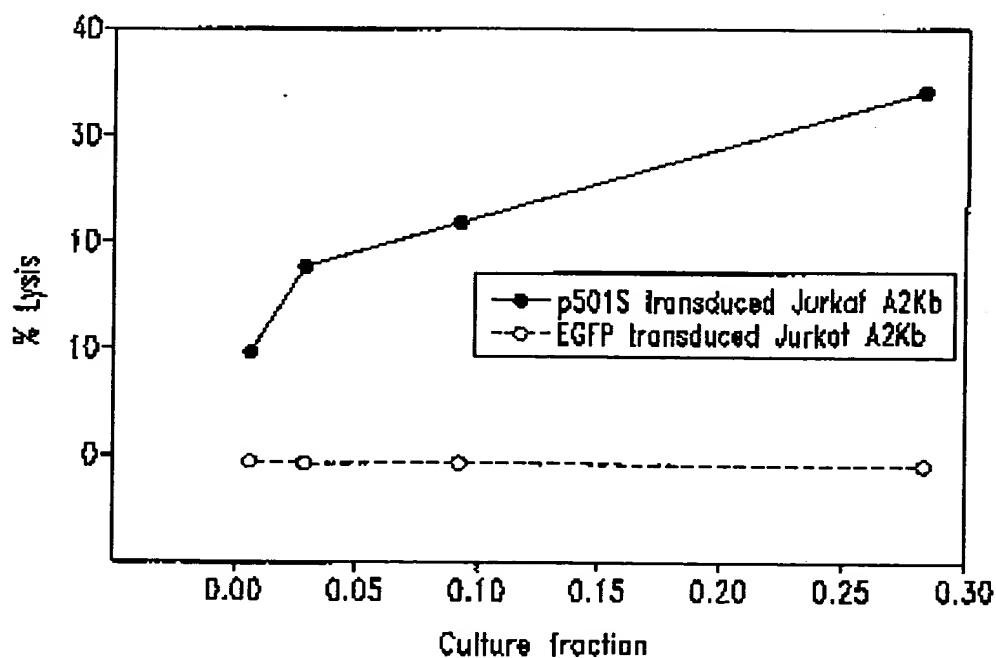
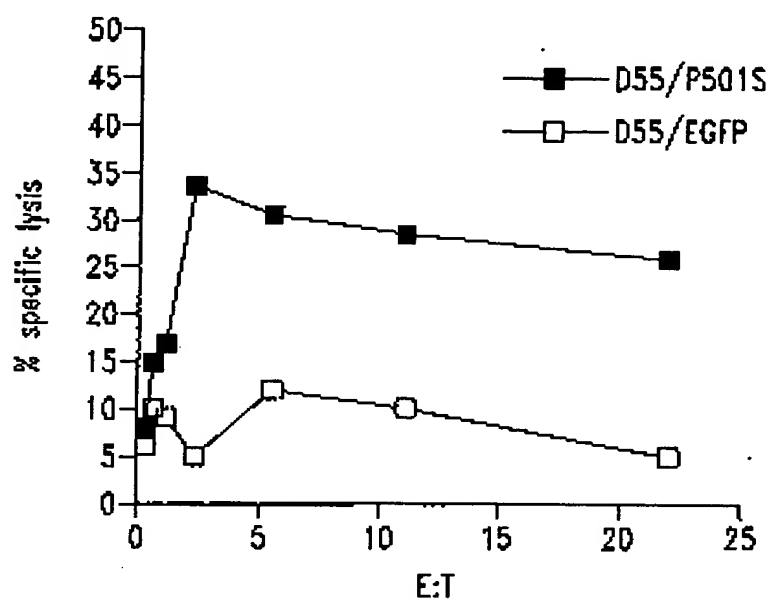
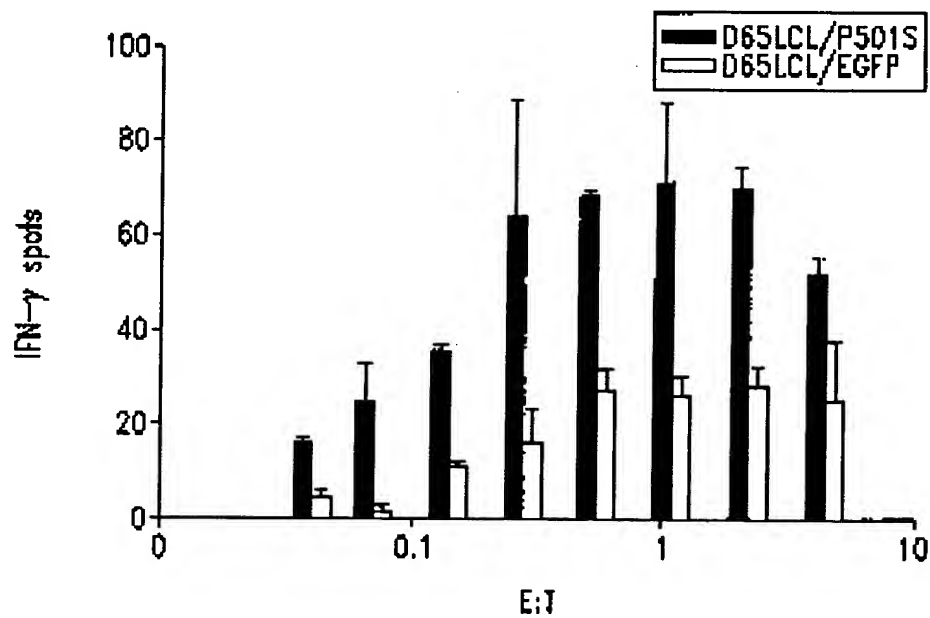
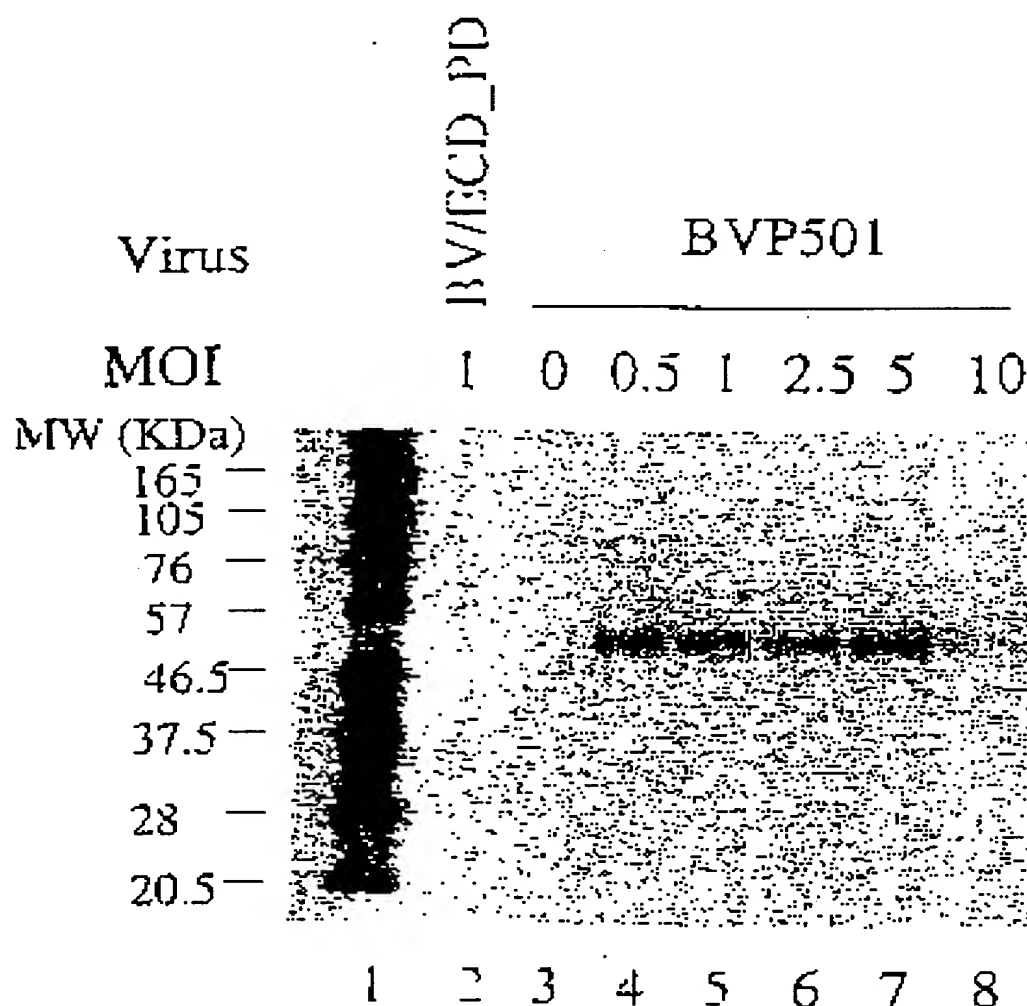


Fig. 3

*Fig. 4**Fig. 5*

*Fig. 6A**Fig. 6B*

Expression of P501S by the Baculovirus Expression System



0.6 million high 5 cells in 8-well plate were infected with an unrelated control virus BV/ECD_PD (lane 2), without virus (lane 3), or with recombinant baculovirus for P501 at different MOIs (lane 4 - 8). Cell lysates were run on SDS-PAGE under the reducing conditions and analyzed by Western blot with a monoclonal antibody against P501S (P501S-10E3-G4D3). Lane 1 is the biotinylated protein molecular weight marker (BioLabs).

Fig. 7

Figure 8. Mapping of the epitope recognized by 10E3-G4-D3

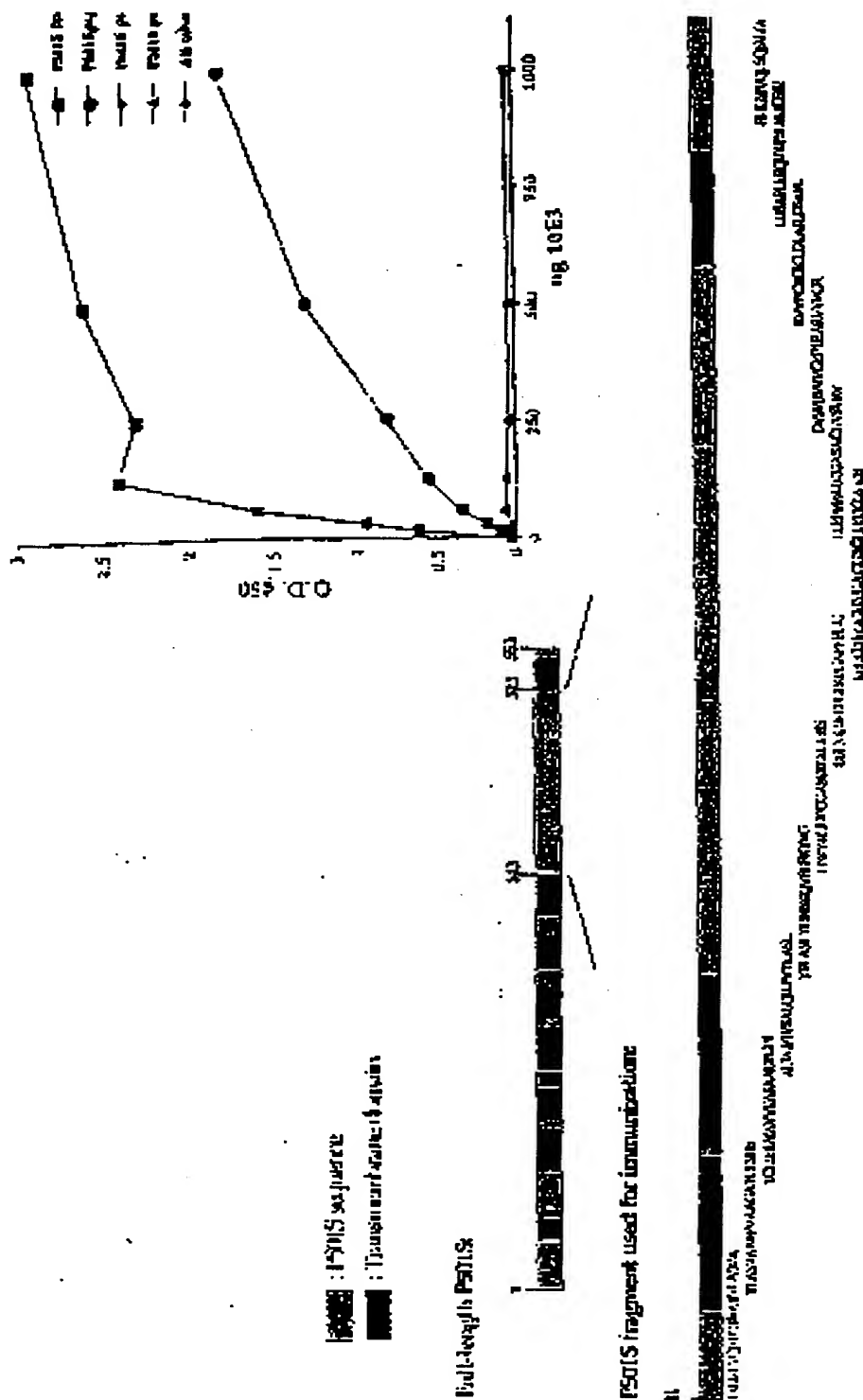


Fig. 8

Schematic of P501S with predicted
transmembrane, cytoplasmic, and extracellular regions

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DHWGRGRYGRRRP FIWALSIGILLSLFLIPRAGWL AGLLCPDPRPLE LALLILGVGLLDFCGQVCFTPL

EALISDLFRDPDHCRQ AYSVAFMISLGGCLGYLLPAI DWDTSALAPYLGTOEE

CLFGLLTILFLTCVAATLIIV AEEMALGPTEPAEGLSAPSLSPHCCPCRARI AFRNLGALLPRL

HQICCRMPRTLRR LFVAELCSMMALMTFTLEYTDF VGEGLYQGVPRAPGTEARRHYDEGVR

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LPPPPALCGASACDVSVRVVVGEPTEARVVPGRG ICLDLAILD SAFLLSQVAPSLF MGSIVQLSQS

VTAYMVSAAGLGLVAIYFAT QVVFQKSDLAKYSA

Underlined sequence: Predicted transmembrane domain; Bold sequence:
Predicted extracellular domain; *Italic sequence*: Predicted intracellular
domain. Sequence in bold/underlined: used generate polyclonal rabbit
serum

Localization of domains predicted using HMMTOP (G.E. Tusnady and I. Simon
(1998) Principles Governing Amino Acid Composition of Integral Membrane
Proteins: Applications to topology Prediction. J. Mol. Biol. 283, 489-506.

Fig. 9

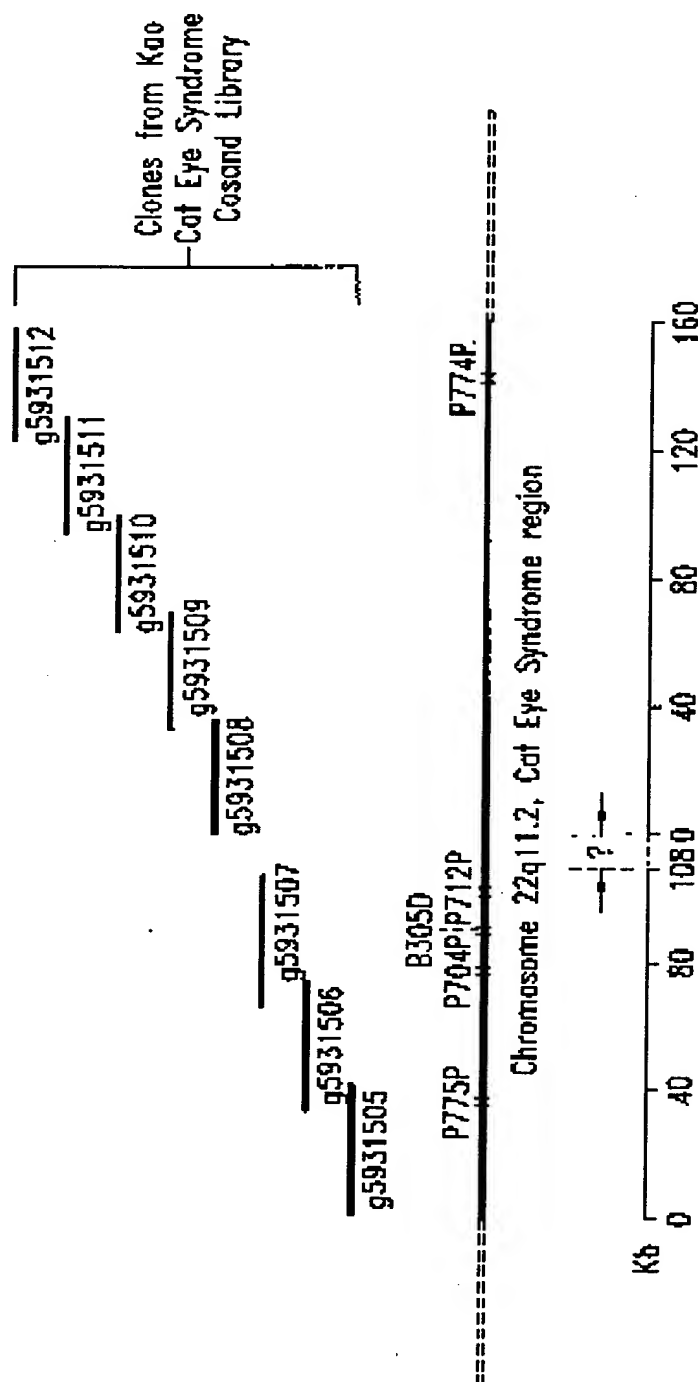


Fig. 10

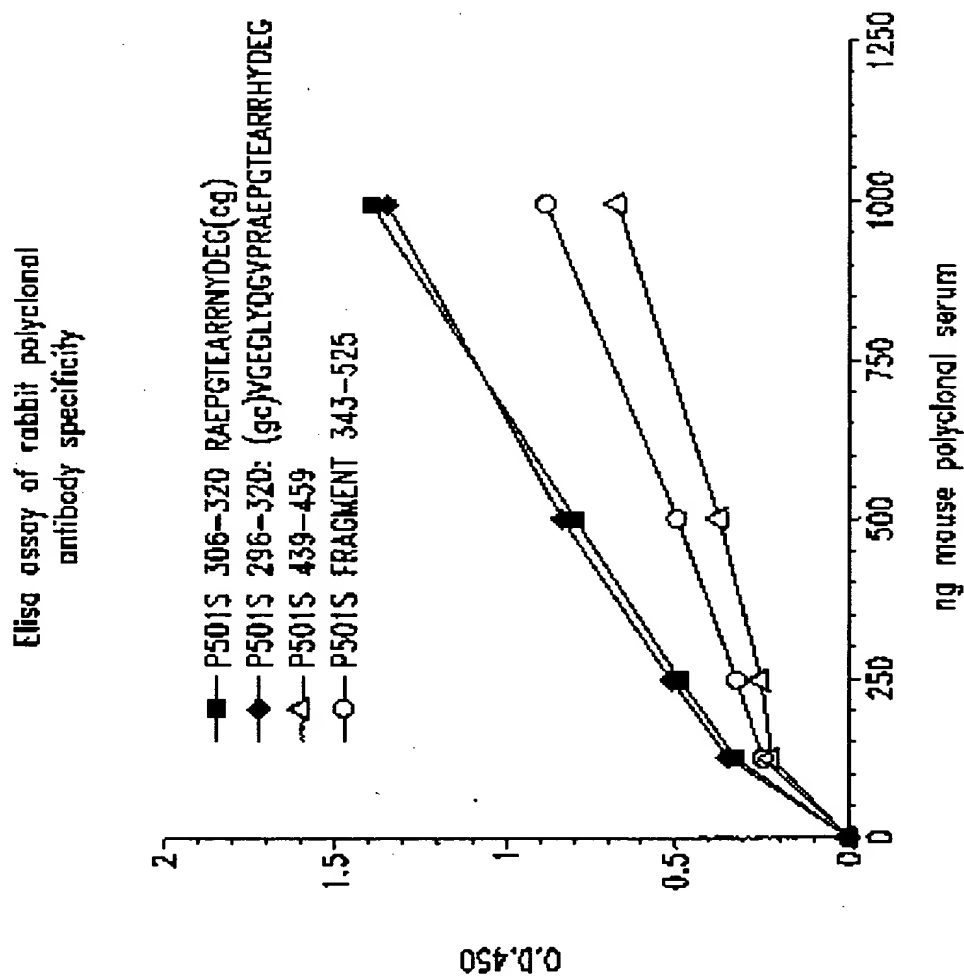


Fig. 11

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 Xu, Jiangchun
 Dillon, Davin C.
 Mitcham, Jennifer L.
 Harlocker, Susan Louise
 Jiang Yuqiu
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tcttagaact	ggggttctat	tgtccaaca	gccatgaatt	ccccatctgc	tgtccctgtaa	360
gtcgtataga	aaggtgctcc	accatccaac	atgttctgtc	ctcagggggg	ggcccggtac	420
ccaattcgcc	ctatantgag	tcttattacg	cgcgtcact	ggcgtctgtt	ttacaacgtc	480
gtgactggga	aaacccctgg	cgttaccaac	ttaatcgctt	tgcagracat	ccccctttcg	540
ccagctgggc	gtaatancca	aaaggcccg	accgatcgcc	cttccaacag	ttgogcaact	600
gaatgggnaa	atgggacccc	cctgttaccc	ogcattnaac	ccccgcnngg	tctngttgtt	660
accercant	nnacrgctta	cactttgcca	ggccttanc	gcgcgtcccc	tttccctttt	720
cttcccttcc	tttccnccn	ctttccccc	gggtttccgc	cttcaaaccc	ena	773

<210> 4

<211> 828

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(828)

<223> n = A,T,C or G

<400> 4

cctcctgagt	cctactgacc	tgtgctttct	gggtgtggagt	ccagggtctgc	taggaaaagg	60
aatgggcaga	cacaggtgta	tgccaatggt	tctgaaatgg	gtataatttc	gtcctctcct	120
toggaaacact	ggctgtctct	gaagacttct	cgctcagttt	cagtgaggac	acacacaaag	180
acgtgggtga	ccatgttggt	tgtgggtgtc	agagatggga	ggggtggggc	ccacctgga	240
agagtggaca	gtgacacaaag	gtggacactc	tctacagatc	actgaggata	agctggagcc	300
acaatgcctg	agggacacac	acagcaagga	tgacnctgta	aacatagccc	acgctgtcct	360
gngggcactg	ggaagcctan	atnaggccgt	gagcnaaaag	aaggggagga	tccactagtt	420
ctanagcggc	cgcaaccgog	gtgganctcc	ancttttggt	ccctttagt	agggtaatt	480
gcgcgcttgg	cntaatcatg	gtcatanctn	tttccctgtg	gaaattgcta	tcgcctcaca	540
attecacaca	acatacganc	cggaacata	aantgtaaac	ctggggtgcc	taatgantga	600
ctaactcaca	ctaactcggt	tgcgtctact	gcgcgcttcc	caatcnggaa	acctgtcttg	660
ccncttgcat	tnatgaatcn	gccaaacccc	ggggaaaagc	gtttgcgttt	tgggcgctct	720
tcgcgttcct	cnctcantta	ntccctnccn	tcggtcattc	cggtcgcncc	aaaccgggtc	780
accnctcca	aagggggtat	tcgggtttcc	cnaatccgg	gganance		828

<210> 5

<211> 834

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)... (834)

<223> n = A,T,C or G

<400> 5

tttttttttt	tttttactga	tagatggaa	ttattaagct	tttcacatgt	gatagcccat	60
agttttaatt	gcatacaca	tactaacaaa	aactctagca	atcaagaatg	gcagcatgtt	120
atttttataa	aatcaacccc	tgtggctttt	aaaatttgg	tttcataaga	taattttatac	180
tgaagttaat	ctagccatgc	ttttaaaaaa	tgcttttagt	cactccaaag	ttggcagtta	240
acatttggca	taaaacaata	taaaacaatc	acaatttaat	aaataacaaa	tacaacattg	300
tagggcaata	tcatactacg	tataaggaaa	aggttgtagt	gttgagtaag	cagttattag	360
aatagaatac	cttggcctct	atgcaaatat	gtctagacac	tttgattcac	tcagccctga	420
cattcagttt	tcaaagtagg	agacagggtc	tcacagtatc	ttttacagtt	tccaacacat	480
tgaaaaacaag	tagaaaatga	tgagttgatt	tttattaatg	cattacatcc	tcaagagtta	540
tcacccaacc	ctcagttata	aaaaattttc	aagttatatt	agtcataata	cttgggtgtg	600
ttattttaaa	ttagtgttaa	atggattaag	tgaagacaa	aattggctccc	taattgtgatt	660
gatattgggc	atttttacca	gtttctaaat	ctnaactttc	aggtttttga	actggaacat	720
tgnatnacag	tgttccanag	ttncaaacct	ctggaaacatt	acagtgtgct	tgattcaaaa	780
tgttattttg	ttaaaactta	aatttttaacc	tgggtggaaaa	ataatttgaa	atna	834

<210> 6

<211> 818

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)... (818)

<223> n = A,T,C or G

<400> 6

tttttttttt	tttttttttt	aagacccctca	tcaatagatg	gagacataca	gaaatagtca	60
aaaccacatct	acnaaatgcc	agtatcaggc	ggcggcttcg	aagccaaagt	gatgttttgg	120
tgtaaaagtga	aattattagtt	ggcggatgaa	gcagatagtg	aggaaagtgg	agccaataat	180
gacgtgaagt	cogtggaaag	ctgtggctac	aaaaaatggt	gagccgtaga	tgcogtoggg	240
aatgggtgaag	gggagactcga	agtactctga	ggctctgtagg	agggtaaaat	agagacccag	300

taaaaattgta	ataagcagtg	cttgaattat	ttggtttcgg	ttgttttcta	ttagactatg	360
gtgagctcag	gtgattgata	ctcctgatgc	gagtaatacg	gatgtgttca	ggagtgaggac	420
ttctagggga	tttagcgggg	tgatgcctgt	tgggggccag	tgccctccta	gttgggggggt	480
aggggctagg	ctggagtggt	aaaaggctca	gaaaaatcct	gcgaagaaaa	aaacttctga	540
ggtaataaat	aggattatcc	cgtatcgaag	gccttttttg	acaggtgggt	tgtgggtggcc	600
ttgggtatgt	ctttctcgtg	ttacatogcg	ccatcatttg	tatatggtta	gtgtgtttgg	660
ttantanggc	ctantatgaa	gaacttttgg	antggaatta	aatcaatngc	ttggccgggaa	720
gtcattanga	nggctnaaaa	ggcctgttca	ngggtctggg	ctnggtttta	cccnacccat	780
ggaatncccc	ccccggacna	ntgnatccct	attcttaa			818

<210> 7

<211> 817

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> {1}...{817}

<223> n = A,T,C or G

<400> 7

tttttttttt	tttttttttt	tggtctctaga	gggggttagag	ggggtgctat	agggtaaata	60
cgggccccat	tccaaagatc	tttaggggaa	ttaattctag	gacgatgggt	atgaaactgt	120
ggtttgctcc	acagatttca	gagcattgac	cgtagtatac	ccccggtcgt	gtagcgggtga	180
aagtggtttg	gttttagacgt	cggggaattg	catctgtttt	taagcctaata	gtggggacag	240
ctcatgagtg	caagacgtct	tgtgatgtaa	ttattatacn	aatggggggt	tcaatcggga	300
gtactactcg	attgtcaacg	tcaaggagtc	gcaggtcgcc	tggttctagg	aataatgggg	360
gaagtatgta	ggaattgaag	atbaatccgc	cgtagtccgt	gttctcctcg	gttcaatacc	420
attgggtggcc	aattgatttg	atggtaaggg	gagggatcgt	tgaactcgtc	tgttatgtaa	480
aggatncctt	ngggatggga	aggcnatnaa	ggactangga	tnaatggcgg	gcangatatt	540
tcaaacngtc	tctantttct	gaaacgtctg	aaatgttaat	aanaaattaan	tttngttatt	600
gaatnttngg	gaaaaggggt	tacaggacta	gaacccaat	angaaaanta	atnntaangg	660
cnttatcntn	aaaggtnata	accnctccta	tnatcccacc	caatngnatt	ccccacnchn	720
acnattggat	cccccaatgc	canaaanggc	ccccccccgg	tgnannccnc	cttttyttcc	780
cttnantgan	ggttattcnc	ccctngcnkt	atcance			817

<210> 8

<211> 799

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> {1}...{799}

<223> n = A,T,C or G

<400> 8

catttccggg	tttaactttct	aaggaaaagcc	gagcgggaagc	tgcataacgtg	ggaatcgggtg	60
cataaggaga	aactttctgct	ggcacgcgct	agggacaagc	gggagagcga	ctccgagcgt	120
ctgaagcgca	cgtrccagaa	gggtggacttg	gcactgaaac	agctgggaca	catccgcgag	180
tacgaacagc	gcctgaaagt	gctggagcgg	gaggtccagc	agtgtagccg	cgtcctgggg	240
tgggtggcgg	angcctganc	cgtctctgct	tgtgtccccc	angtgggccc	ccacccccctg	300
acctgcctgg	gtccaaaacac	tgagccctgc	tggcggactt	caagganaac	ccccacangg	360
ggattttgct	cctanantaa	ggctcatctg	ggcctcggcc	cccccaacctg	gttgggccttg	420
tctttgagnt	gagccccatg	tccatctggg	ccactgtcng	gaccaccttt	ngggagtggt	480
ctccttacea	ccacannatg	ccgggtctct	ccoggaaacc	antccocance	tnggaaggat	540
caagncctgn	ctccactnnt	netanaacgg	gcncncnccg	cngtggaaacc	cnccttntgt	600
tcttttctnt	tnagggttaa	ctnncgcttg	gccttnccan	ngtccctncc	nttttccnnt	660

gttnaaattg	ttangcnccc	neennntccn	cnnnnnnnnan	cccgaccenn	annntnnann	720
nectgggggt	neennngat	tgaccenncc	neectntant	tgenttnggg	nnennntgccc	780
ctttccctct	nggganncy					799

<210> 9
 <211> 801
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc feature
 <222> (1)...(801)
 <223> n = A,T,C or G

<400> 9						
acgccttgat	cccccaggc	tgggactggt	tctgggagga	gccgggcatg	ctgtgggttg	60
taangatgac	actcccaag	gtggtccctga	cagtggccca	gatggacatg	gggctcacct	120
caaggacaag	gccaccagg	gcggggggcg	aagcccatat	gatercttact	ctatgagcaa	180
aatccctgt	gggggtctct	ccttgaagtc	cgccancagg	gtcagtcctt	tggaccang	240
caggtcattg	gggtgtngnc	caactggggg	ccncaacgca	aaanggcnc	gggectcngn	300
cacccatccc	angaccgggc	tacactnctg	gacctccmc	tcacccactt	tcagtgcctg	360
ttentacccg	cgnatntgtc	ccanctgttt	cngtgcenac	tcacncttct	nggacgtgcg	420
ctacatacgc	ccggantcnc	notcccgctt	tgteccctatc	cacgtncocan	caacaaattt	480
cncctantg	cacnabttcc	cacnttttnc	agntttccnc	nnccngcttc	cttntaaaag	540
ggttgancce	cggaaaatnc	ccccaaaggcg	ggggggccngg	tacccaaactn	ccccctnata	600
gctgaanterc	ccatnarcnn	gnotcnatgg	anccntccnt	tttaannacn	ttctnaactt	660
gggaanance	ctcgncctn	ccccnttaa	tcencccttg	cnangnnct	cccccnntcc	720
neccmntng	gcntntnann	cnaaaaaggc	ccnnnancaa	tctcctnnnn	ctcctanttg	780
ccancctctg	aaatcggrcn	c				801

<210> 10
 <211> 789
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc feature
 <222> (1)...(789)
 <223> n = A,T,C or G

<400> 10						
cagtctatnt	ggccagtgtg	gcagctttcc	ctgtggctgc	gggtgccaca	tgcctgtccc	60
acagtgtggc	ctgtgtgaca	gcttcagccg	ccctcaccgg	gttcaccttc	tcagccctgc	120
agatcctgac	ctacacactg	gctccctct	accacccggg	gaagcaggty	ttcctgccc	180
aataccgagg	ggacactgga	ggtgctagca	gtgaggacag	cctgatgacc	agcttcctgc	240
caggccctaa	gcttgagct	cccttcocct	atggacacgt	gggtgctgga	ggcagtggcc	300
tgtcccccac	tcacccggcg	ctctgogggg	cctctgcctg	tgatgtctcc	gtacgtgtgg	360
tggtgggtga	gcccacogan	gcccagggtg	ttccgggctg	gggcattctg	ctggacctcg	420
ccatcctgga	tagtgcttcc	tgctgtccca	ngtgccccc	tcctgttta	tgggtcccat	480
tgteccagctc	agccagctctg	tcactgccta	tatgggtgtct	gccgcaggcc	tgggtctggc	540
cccatcttact	ttgctacaca	ggtantattt	gacaagaaag	anttgcccaa	atactcagcg	600
ttaaaaaatt	ccagcaacat	tgggggtgga	aggcctgcct	cactgggtcc	aactccccgc	660
tctgtttaac	cccatggggc	tgcgggtgtg	gcggccaatt	tctgttgcctg	ccaaantnat	720
gtggctctct	gctgccacct	gttgcctggc	gaagtgcnta	cngcncanct	nggggggtng	780
ggngttccc						789

<210> 11
 <211> 772

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(772)

<223> n = A,T,C or G

<400> 11

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cccacccctac ccaaatatta gacacccaaca cagaaaagct agcaatggat tcccttctac      60
tttggttaaat aaataagtta aatattttaa tgccctgtgtc tctgtgatgg caacagaagg      120
accaacaggc caccatcctga taaaaggtaa gaggggggtg gatcagcaaa aagacagtgc      180
tgtgggctga ggggacctgg ttcttgtgtg ttgcccccca ggactcttcc cctacaaata      240
actttcatat gtccaatcc catggaggag tgtttcctcc tagaaactcc catgcaagag      300
ctacattaaa cgaagctgca ggttaagggg ctlanagatg ggaaaccagg tgactgagtt      360
tattcagctc ccaaaaaccc ttctctaggt gtgtctcaac taggaggcta gctgttaacc      420
ctgagcctgg gtaatccacc tgcagagtc cgcattcca gtgcattgga ccttcttggc      480
ctccctgtat aagtcacagc tgaacacccc ttggaaggnc tccagtcagg cagccctana      540
aactggggga aaaggaagag gacgcccacn ccccagctg tgcactacg cactcaaca      600
gcacaggggtg gcagcaaaaa aaccacttta ctttggcaca aacaaaaact ngggggggca      660
accccgggcac ccnangggg gttaacagga ancnnggnaa cntggaaacc aattnaggca      720
ggcccnccac ccnaatnct gctgggaat tttctctccc cttaaatttt tc      772

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<210> 13

<211> 751

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(751)

<223> n = A,T,C or G

<400> 12

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gccccaatte cagctgccac accacccacg gtgactgcat tagttoggat gtcatacaaa      60
agctgattga agcaacccctc tacttttttg tegtgagcct ttgcttggg gcagggtttca      120
ttgctgtgtg tggtagctt gtcattgcaa cagaatgggg gaaaggcact gttctctttg      180
aagtanggtg agtccctcaa atccgtatag ttggtgaagc cacagcactt gagccctttc      240
atggtgggtg tccacacctg agtgaagtct tcttgggaac cataatcttt cttagtggca      300
ggcactacca gcaacgtcag ggaagtgtc agccattgtg gtgtacacca agggagccac      360
agcagctgcn acctcagcaa tgaagatgan gagganatg aagaagaacg tcncgagggc      420
acacttgctc tcagtcttan caccatanca gcccntgaaa accaananca aagaccacna      480
cnccggctgc gatgaagaaa tnaccccnctg ttgacaaact tgcattggcac tggganccac      540
agtggccnna aaaatcttca aaaaggatgc cccatcnatt gaccccccaa atggccactg      600
ccacacgggg ctgccccacn cnchnaacga tganccnatt gnacaagatc tncntggctc      660
tnatnaact gaacctgcn tngtggctcc gtgtcaggnc cnnggcctga ctctnaann      720
aangaactcn gaagncacca cnngganann g      751

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<210> 13

<211> 729

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(729)

<223> n = A,T,C or G

<400> 13

gagccaggcg	tccctctgcc	tgccccactca	gtggcaaacac	ccgggagctg	ttttgtccct	60
tgtggancc	cagcagtncc	ctcttccaga	actcancgce	aagancctg	aacaggagcc	120
accatgagct	gcttcagctt	cattaagacc	atgatgatcc	tcttcaattt	gctcatcttt	180
ctgtgtgggtg	cagccctgtt	ggcagtgggc	atctgggtgt	caatcgatgg	ggcatccttt	240
ctgaagatct	tcggggccact	gtcgtccagt	gccatgcagt	ttgtcaacgt	gggtactctc	300
ctcatcgag	ccggcgctgt	ggtcttagct	ctagggttcc	tgggtgtcta	tgggtgctaag	360
actgagagca	agtgtgccc	cgtgacgttc	ttcttcatcc	tcttctcat	cttcattgct	420
gaggttgcaa	tgtctgtggtc	gcttgggtgt	acaccacac	ggctgagcac	ctcttgagct	480
tgtgtgta	gcttgcctc	aanaaaagat	tatgggttcc	caggaaact	tcactcaagt	540
gttggaacac	cacctgaaa	gggtcgaagt	gctgtggctt	cnnccacta	tacggatttt	600
gaagantcac	ctacttcaaa	gaaaaanagt	cctttccccc	attctctgtg	caattgacaa	660
acgtcccca	cacagccaat	tgaaaacctg	cacccaaccc	aannggtcc	ccaaccanaa	720
attnaaggg						729

<210> 14

<211> 816

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (816)

<223> n = A,T,C or G

<400> 14

tgtcttctct	caagtttgtt	cttgttgcca	taacaaccac	cataggtaaa	gcgggagrag	60
tgttctctga	aggggttgtt	gtaccagcgc	gggatgtctc	ccttgacagag	tcctgtgtct	120
ggcaggtcca	cgcagtgccc	tttgtcactg	gggaactgga	tgcgctggag	ctcgtcaaa	180
ccacttgtgt	atctttcaca	ggcagcctcg	tcogaecgct	cggggcagtt	gggggtgtct	240
tcacactcca	ggaaaactgtc	natgcagcag	ccattgtctg	agcggaaactg	ggtgggtgtga	300
cangtgcag	agcacactgg	atgggcctct	tcctatgnan	gggccttng	ggaaagtccc	360
tganccecan	anchgcctct	caaangcccc	accttgccca	ccccgacagg	ctagaatgga	420
atcttcttcc	cgaaggttag	ttnttcttgt	tgcrcancc	ancccntaa	acaaactctt	480
gcanaatctgc	tcognggggg	tctantacc	anogtgggaa	aagaacccca	ggcngcgaa	540
caancttgtt	tggatnrgaa	gcataatct	ncnttctctg	ttgttgga	gcacantna	600
ctgtcnnant	ttagnccntg	gtctcctgtg	gttgncttgc	aacctaactn	ccnntcaact	660
gggacaaggt	aantngccnt	cctttnaatt	ccnancntn	ccccctggtc	tgggggtttt	720
cnctctctta	ccccagaaan	ncogtgttcc	cccccaacta	ggggccnaaa	ccnnttnttc	780
cacaacctcn	ccccacccac	gggttngnt	ggttng			816

<210> 15

<211> 783

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (783)

<223> n = A,T,C or G

<400> 15

ccaaggcctg	ggcaggcata	nacttgaagg	tacaacccca	ggaacccctg	gtgctgaagg	60
atgtggaaaa	cacagattgg	cgctactg	gggttgacac	ggatgtcagg	gtagagagga	120
aagacccaaa	ccaggtggaa	ctgtggggac	tcaagggaang	cacotacctg	ttccagctga	180
cagtgaactag	ctcagaccac	ccagaggaca	cggccaaagt	cacagtccact	gtgctgtcca	240
ccaagcagac	agaagactac	tgcctcgcat	ccaacaangt	gggtcgctgc	cggggctctt	300
tcccacgctg	gtactatgac	cccacggagc	agatctgcaa	gagtttctgt	tatggaggct	360

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gcttgggcaa caagaacaa taccttggg aagaagagt cattctance tgcnggggtg 420
tgaagggtgg gcctttgana ngcanctctg gggtcange gaatttcccc caggggccct 480
ccatggaaag ggcacatccc ntgttctctg gcacctgtca gcccaccag ttccgtgtca 540
ncaatggctg ctgcacnac anttctctng aattgtgaca acacccccca ntggccccaa 600
ccctcccaac aaagcttccc tgttnaaaaa tcnccantt sgcttctnac aaacnccgg 660
cncctccttt tccccnntn aacaaagggc nctngccttt gaactgccc n aaccnaggaa 720
ctnccnngg aaaaantncc ccccttgggt cctnnaance cctcncnaa anctncccc 780
ccc 783

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<210> 16
 <211> 801
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(801)
 <223> n = A,T,C or G

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<400> 16
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agctgattga agcaaccctc tacttttttg tcttgagcct ttgtcttggg gcagggtctca 120
ttggctgtgt tggatgaagt gtcattgcaa cagaatgggg gaaaggcact gttctctttg 180
aagtagggtg agtcccaaaa atccgtatag ttggtgaago cacagcactt gagccctttc 240
atggtggtgt tccacacttg agtgaagtct tcttgggaa ctaactcttt ctctgatggca 300
ggcactacca gcaacgtcag gaagtgtcga gccatttgtg tgtacaccaa ggccgaccaca 360
gcagctgcaa cctcagcaat gaagatgagg aggaggatga agaagaacgt cncgagggca 420
cacttgtctc ccgtctttag accatagcag cccangaaac caagagcaaa gaccacaacg 480
ccngctgcga atgaasgaaa ntacccacgt tgacaaactg catggccact ggargacagt 540
tggccogaan atcttcagaa aagggatgoc ccatcgattg aacacccana tggccactgc 600
cnaaggggtg gcnccnccn gaaagaatga gccattgaag aaggatcttc ntggtcttaa 660
tgaactgaaa ccatgcctgg tggccctct tccaggctct tggcagtga ttctganaaa 720
aagggaacngc ntnagcccc ccaaangana aaacaccccc gsgtgttgcc ctgaattggc 780
ggccaaggan cctgccccn g 801

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<210> 17
 <211> 740
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(740)
 <223> n = A,T,C or G

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<400> 17
gtgagagcca ggggtccctc tgcctgcca ctcagtggca acaccoggg gctgttttgt 60
ccttttgtga gcctcagcag ttccctcttt cagaactcac tggcaagagc cctgaacagg 120
agccaccatg cagtgtctca gcttcattaa gaccatgatg atcctcttca atttgtctat 180
ctttctgtgt ggtgcagccc tgttggcagt gggcatctgg gtgtcaatcg atggggcctc 240
ctttctgaag atcttcgggc cactgtcgtc cagtgccatg cagtttgtca acgtgggcta 300
cttctctatc gcagccggcg ttgtgtctt tgccttggg ttcttgggct gctatgggtg 360
taagacggag agcaagtgtg cctcgtgac gttctctctc atcctctctc tcatcttcat 420
tgctgaagtt gcagctgtct tggctgcctt ggtgtacacc acaatggctg aaccattcct 480
gacgttgtct gtantgcctg ccataaanaa agattatggg ttcccaggaa aaattcactc 540
aantntggaa caacnccatg aaaagggctc caattctctg tggcttcccc aactataccg 600
gaattctgaa agantcncgc tacttccaaa aaaaaanant tgcctttnc cconttctgt 660
tgcaatgaaa acntcccaan acngccaatn aaacactgcc cnnncaaaaa ggntcncaa 720

```

caaaaaaant nnaagggttn

740

<210> 18
 <211> 802
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1)... (802)
 <223> n = A,T,C or G

<400> 18
 ccgctgggttg cgctgggtcca gngnagccac gaagcacgtc agcatacaca gcctcaatca 60
 caaggtcttcc cagctgcgcg acattacgca gggcaagagc ctccagcaac actgcctatg 120
 ggatacactt tacttttagca gccagggtga caactgagag gtgtcgaagc ttattcttct 180
 gagectctgt tagtggagga agattccggg cttcagctaa gtagtcagcg catgtccrat 240
 aagcaaacac tgtgagcagc cggaaaggtag aggcaaagtc actctcagcc agctctctaa 300
 cattgggcat gtccagcagt totccaaaca cgtagacacc agnggcctcc agcaactgat 360
 ggatgagtggt ggccagcgct gcccccttgg cgcacttggc taggagcaga aattgctcct 420
 ggttctgccc ttgtacccttc acttccgcac tcatcaactgc actgagtgtg ggggacttgg 480
 gctcaggatg tccagagacg tggttccgcc cectcnctta atgacacccn ccanncaacc 540
 gtcggctccc gccgantgng ttctgtctac ctgggtcagg gtctgtctggc cnetacttgc 600
 aancttctgtc nggcccctgg aattcacccc accggaactn gtangatcca ctntttctat 660
 aacggngcgc caocggnnnt ggaactccac tcttnttccc tttacttgag ggttaaggtc 720
 accctttnng ttaccttggc ccaaacctn centgbgtog anantgtnaa tcnngnccna 780
 tncanccncc atangaagcc ng 802

<210> 19
 <211> 731
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1)... (731)
 <223> n = A,T,C or G

<400> 19
 cnaagcttcc aggtnacggg ccgcnaancr tgaccocnagg tancanaang cagncngcgg 60
 gageccaccg tcaagnggng gngtctttat nggagggggc ggagccacat cnetggacnt 120
 cntgacccca actcccccnc ncnccantgca gtgatgagtg cagaactgaa ggtnacgttg 180
 caggaaaccaa gancaaannc tgctccnntc caagtoggcn nagsgggcgg ggcctggccac 240
 gcncatccnt cnagtgtctn aaagcccccnn cctgtctact tgtttggaga acngcnnnga 300
 catgcccagn gttaataaac nggongagag tnannttgcg totcccttcc ggctgogcan 360
 cngntntgct tagnggacat aacctgacta cttaactgaa cccnngaate tncnccctct 420
 ccactaagct cagaacaaaa aacttcgaca ccaactcantt gtcacctgnc tgrtcaagta 480
 aagtgtacco catncccaat gtntgctnga ngctctgncc tgcnttangt tgggtcctgg 540
 gaagacctat caattnaagc tatgtttctg actgcctctt gctccctgna aceanccncc 600
 cnnccntcca aggggggggc ggcccccaat ccccccaacc ntnaattnan cttanccccc 660
 ccccnnggdc cggcctttta cnanctctnn nnaacngggna aaacccnnngc tttncccaac 720
 nnaatccncc t 731

<210> 20
 <211> 754
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(754)
 <223> n = A,T,C or G

<400> 20
 .tttttttttt tttttttttt taaaaacccc ctccatttaa tgnaaacttc cgaatttgc 60
 caacccccc ntccaaatnn ccttttccgg gnggggggttc caaacccaan ttannnttgg 120
 annttaaat aaatnttntt tggngggnna anccnaatgt nangaaagt naaccanta 180
 tnancttnaa tncctggaaa cngtngntt ccaaaaatnt ttaaccctta antccctcog 240
 aaatngttna nggaaaaccc aanbtctent aagggtgttt gaaggntnaa tnaaaanccc 300
 nnccaattgt ttttngccac gcttgaatta attggncttc gntgttttcc nttaaaaaa 360
 ggnanacccc ggttantnaa tccccccnnc cccaattata coganntttt ttngaattgg 420
 ganccmccgg gaattaacgg ggnnnntccc tnttgggggg cngggncccc cccctcggg 480
 ggttngggnc aggnonnaat tgtttaaggg tccgaaaaat cctccnaga aaaaaanctc 540
 ccaggntgag nntnggggtt nccccccccc canggccctt ctognanagt tgggggttgg 600
 ggggcttggg atttntttt cctntttnc tccccccccc cngggganag aggttngngt 660
 ttgtntcnc ggcceccnnc aaganctttn ccganttnan ttaaatcctt gcttnggcga 720
 agtccnttgn agggntaan ggccectnn oggg 754

<210> 21
 <211> 755
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(755)
 <223> n = A,T,C or G

<400> 21
 atcancat gatcccaaac nngggaccnc tcanccggnc nnnnacnnc cggccnatca 60
 nngtnagnnc actnccnttn natsacnccc cncnactac gccnccnanc cnacgccta 120
 nncanattnc actganngcg cngatngan ngagaaanct nataccanag ncaccanacn 180
 ccagctgtcc nanaangect nnnatacngg nnnatccaat ntgnancctc cnaagtattt 240
 nncnncanct gattttcctn anccgattac cctncccc tanccectcc cccccaacna 300
 cgaaggcnct ggnccnaag nngcncncc ccgtagntc ccnncnaagt cncncccta 360
 aactcanccn nattaenccg ttentgagta tactccccg aatctcacc tactcaactc 420
 aaaaanaten gatacaaat aatncaagcc tgnattatna actntgactg ggtctctatt 480
 ttagnngtcc ntnaancntc ctaatacttc cagtctnct tcnccaattt cnaanggct 540
 ctttengaca gcatnttttg gttccnntt ggttcttan ngaattgccc ttentngaac 600
 gggctctctt ttcccttgg ttancctggg tcnncocggc cagttattat ttccntttt 660
 aaattctncc cttttanttt tggctttna aacccccggc cttgaaaacg gccccttgg 720
 aaaaggttgt ttganaaaa ttttgtttt gtccc 755

<210> 22
 <211> 849
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(849)
 <223> n = A,T,C or G

<400> 22
 tttttttttt tttttangtg tngtctgca ggtagaggt tactacaant gtgaanacgt 60
 acgtnggan taangcgaac cganctctag gannccctt aaatcanac tgtgaagatn 120

atcctgmnna	oggaanggtc	acgggnggat	nttgctaggg	tgacnctcc	canunenttn	180
cataactcng	nggcctgccc	caaccacttc	ggcgcccccng	ngnccggggcc	cggttcattn	240
gnnttaaccn	cactnngcna	ncgggttccn	ncoccnncng	accnngggga	tcgggggtnc	300
tctgtcttcc	cctgmagncn	anaaantggg	ccnccggccc	ctttacccct	nnacaagcca	360
cngccntcta	nocnngccc	ccctccant	nngggggact	gcnanngct	cgttctctng	420
nnaccccnun	gggttccctg	gttgctcgant	cnaccgnang	ccannggattc	cnaagggaagg	480
tgggttnttg	gcccctaccc	ttcgtctcgg	nnacaccttc	ccgacnanga	nccgctcccg	540
cnennccgng	cctcncctcg	caacacccgc	netctctngt	ncggnnnccc	cccaccocgc	600
ncctctcnc	ngnccgnancn	ctcncnccc	gtctcannca	ccaccccgcc	ccgcccagggc	660
ntcanccacn	ggungacnng	nagcncnttc	gcncccgccn	gcnncnccct	ogcncngaa	720
ctnctctcng	ccantnncgc	tcaanccnna	cnaaacgccc	ctgcccgggc	cgnagccgnc	780
ncctcncga	gtctcccgcn	cttcnnaacc	angnttccn	cgaggacacn	nnaccccgcc	840
nnccangcgg						849

<210> 23

<211> 872

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(872)

<223> n = A,T,C or G

<400> 23

gcgcaacta	tacttcgctc	gnactcgtgc	gcctcgctnc	tcttttccctc	ogcaaccatg	60
tctgacnanc	ccgatttggc	ngatatacnan	aagntcganc	agtcacaaact	gantaacaca	120
cacacnncan	aganaaatcc	netgccttcc	anagtanaacn	attggaacnng	agaaccange	180
nggcgaatcg	taatnaggcg	tgcgcgcgca	atntgtcnc	gtttattntn	ccagctcnc	240
ctnccnacc	tacntcttcc	nagctgtcnn	acccctngtn	cgnacccccc	naggtcggga	300
tgggttctta	nttgacccng	cnnccctcc	ccctctccat	nacganccnc	ccgcaccacc	360
nanngcncgc	nccccgnnet	cttcgcnccc	ctgtctctntn	ccctgtngc	ctggcnngn	420
acpccattga	ccctcgccnn	ctnccngaaa	ncgnanacgt	ccgggttgann	annancgctg	480
tgggnnngcg	tctgcnccgc	gttccctccn	ncncttccca	ccatctctct	taenggggtct	540
ccnccgcctc	tccnncaenc	cctgggacgc	tnctctntgc	ccctcttnac	tccccccctt	600
cgnccgtgncc	cgnccccacc	ntcatttnca	nacgntcttc	acaannccct	ggntnnctcc	660
cnanccngcn	gtcanccnag	ggaagggngg	ggnnccnntg	nttgacgttg	ngngangtc	720
cgaanantcc	tccnctcan	cncctacccct	cggggcgnet	ctcngttnc	aacttandaa	780
ntctccccc	ngngcncntc	tcagcctcnc	cncnccnct	ctctgcantg	tnctctgctc	840
tnaccnntac	gantnttcgn	cncctcttt	cc			872

<210> 24

<211> 815

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(815)

<223> n = A,T,C or G

<400> 24

gcatgcaagc	ttgagtattc	tatagngtca	cctaaatanc	ttggentaat	catggctonta	60
notgncttcc	tgtgtcaaat	gtatacnaa	tanatatgaa	tctnatntga	caaganngta	120
tentncatta	gtaacaantg	tnntgtccat	cctgtcngan	canattccca	tnnattnccn	180
cgccattcnc	gcnantlatn	taatngggaa	ntcnnntnnn	ncaccnccat	ctatctntcc	240
gncccctgac	tggnagagat	ggatnantt	tnntntgacc	nacatgttca	tcttggattn	300
aananccccc	cgcnngccac	cggttngnng	cnagccnntc	ccaagacctc	ctgtggaggt	360

aacctgogtc	aganncatca	aacntgggaa	acccgcnncc	angtnnaagt	ngnnncanan	420
gataccgctcc	aggnttnacc	atcccttenc	agcgccccct	ttngtgccct	anagnnagc	480
gtgtccnanc	cncatcaacat	ganaogcgcc	agnccanccg	caattnggca	caatgtcgnc	540
gaaccccccta	gggggagntna	tncaaanccc	caggatbtgc	cncncangaa	atcccnanc	600
ccnccctac	ccncttttg	gacngtgacc	aantcccgga	gtncaggtcc	ggcngnctc	660
ccccacoggt	nnccntgggg	gggtgaanct	cngnntcanc	cngncgaggn	ntognaagga	720
acgggncctc	ggncgaanng	ancnntcnga	agngccnct	cgtataacce	ccctcncca	780
ncnnaengnt	agntcccccc	cngggtnogg	aangg			815

<210> 25

<211> 775

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(775)

<223> n = A,T,C or G

<400> 25

ccgagatgtc	tcgtctcgtg	gccttagctg	tgctogcgct	actctctctt	tctggcctgg	60
aggctatcca	gcgtactcca	aagattcagg	tttactcaog	tcattccagca	gagaatggaa	120
agtcaaattt	cctgaattgc	tatgtgtctg	ggtttcctcc	atccgacatt	gaanttgact	180
tactgaagaa	tggaagagaa	attgaaaaag	tggaagcattc	agacttgtct	ttcagcaagg	240
actggctctt	ctatctcttg	tactacactg	aattcaccct	cactgaaaaa	gatgagtatg	300
cctgcctgtg	gaaccatgtg	actttgtcac	agcccaagat	agttaagtgg	gatcgagaca	360
tgtaagcagn	cnnatggaa	gtttgaagat	gccgcatttg	gattggatga	attccaaatt	420
ctgcttgcct	gcnctttaat	antgatatgc	ntatacacc	tacctttat	gnccccaat	480
tgtaggggtt	acatnantgt	tcnctnngga	catgatcttc	ctttataant	cncncttgc	540
aattgcccgt	cncncngttn	ngaattgttc	cnnaaaccacg	gttggctccc	ccaggtcncc	600
tcttacggaa	gggcctgggc	cnccttncaa	gggtggggga	accnaaaatt	tcncttntgc	660
ccncccncca	cnccttngg	nnccncttt	ggaacccttc	cnattccctt	tggcctcnna	720
ncctttncta	anaaaacttn	aanccgtngc	naaanntttn	acttcccccc	ttacc	775

<210> 26

<211> 820

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(820)

<223> n = A,T,C or G

<400> 26

anattantac	agtgtaatct	tttcccagag	gtgtgtanag	ggaacggggc	ctagaggcat	60
ccanagata	ncctatance	acagtgcctt	garcaagagc	tgctggggac	atttccctga	120
gaaaagggtg	cggcccccat	cactcctcct	ctcccatagc	catcccagag	gggtgagtag	180
ccatcangcc	ttcggtggga	gggagtcang	gaacacaacn	accacagagc	anacagacca	240
ntgatgacca	tgggcggggg	cgagcctctt	ccctgnaccg	gggtggcana	nganagccta	300
notgaggggt	cacactataa	acgttaaoga	ccnagatnan	cacctgcttc	aagtgcaccc	360
ttcctacctg	acnaccagng	accnnnaact	gongcctggg	gacagcctg	ggancagcta	420
acnnagcact	cacctgcccc	cccatggccc	tnccnctccc	tggtccctgnc	aagggaagct	480
cctgtttgga	attncggggg	naaccaaggga	nccccctcct	ccanctgtga	agggaaaaann	540
gatggaattt	tncccttccg	gcccmtcccc	tcttccctta	cacgccccct	mntactcnct	600
tcctctctnt	ntcctgnenc	acttttnacc	ccnnnatctc	ccttnattga	tcggannctn	660
ganattccac	tnnogcctnc	cntcnateng	naanaacnaaa	nactntctna	ccnnggggat	720
gggnncctcg	ntcctcctct	cttttctnct	acnccennct	ccttgccctct	ccttngatca	780

tccaaacentic gntggccntn cccccccnnn tcccttnccc

820

<210> 27
 <211> B18
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1) ... (818)
 <223> n = A,T,C or G

<400> 27
 tctgggtgat ggcctcttcc tccctcaggga cctctgactg ctctggggcca aagaatctct 60
 tgtttcttct cccagcccca ggcagcgggtg attcagccct gcccaacctg attctgatga 120
 ctgcggatgc tctgacggac ccaaggggca aatagggtcc cagggtccag ggaggggggc 180
 ctgctgagca cttecgcccc tcaacctgcc cagccctgc catgagctct gggtcgggtc 240
 tccgcctcca gggttctgct ctccangca ngccancaa tggcgtggg ccacactggc 300
 ttcttctgc cccctccctg gctctganc tctgtcttc tctcctgtgc angcctctg 360
 gatctcagtt tccctcctc anngaaactc gttctctgann tcttcantta actntgannt 420
 tatnaccnan tggnetgtnc tgtcnnaact taatgggccc gacoggetaa tccctccctc 480
 nctccttcc anttccnnna accngcttnc cntctctcc ccctancccg ccnggggaac 540
 ctcccttgcc ctnacccang gccnnnaccg ccctnnctn ggggggcccng gtannctnnc 600
 ctgntnnccc cctctcctnt tncctcgtcc cctnnncccg nngcannctc nengtcccn 660
 tnnctctten ngntctcgnaa ngntcncntn tnnnnngncc ngntnntncc tccctctcnc 720
 cnnctgnang tnnctnnnncc ncnngncccc nnnnnnnnnn nggnntnnn tctnccnngc 780
 cccnncccc ngnattaagg cctcnnctct ccggccac 818

<210> 28
 <211> 731
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1) ... (731)
 <223> n = A,T,C or G

<400> 28
 aggaagggcg gagggatatt gtanggggatt gagggatagg agnataangg gggaggtgtg 60
 tcccaacatg anggtgnngt tctctcttga angaggggtg ngtttttaon ccnggtgggt 120
 gattnaacc ccttgctatg agnnaaagggt tttcagggat ttttcgggtc ttatcagtat 180
 ntanattcct gtnaatcggg aatnatntt tcnncnggaa aatnttgcct ccctccgnaa 240
 attnctcccg ggtagtgcct nttngggggg cngccangtt tccaggtg ctanaatcgt 300
 actaaagntt naagtgggan tncaaatgaa aacctnncc agagnatccn taccogactg 360
 tnnnttncct tgcctctatg actctgcnng agcccaatac ccngngnat gtcccengn 420
 nnnngcgncc tgaannnncc tcnnggctnn gancatcang gggtttcgca tcaaaagcnn 480
 cgtttcncat naaggcactt tngcctcct caaccnctng cctcnncca ttngccgtc 540
 nggttencct acgctnnctg cncctnnntn ganattttnc ccgctnggg naancctcct 600
 gnaatgggtg gggnetctnc ttttnacnnn gnggtntact aatcnnctnc acgctnctt 660
 tctnaccccc cccctctttt caatccccc ggcnaatggg gtctcccccnn cgaagggggg 720
 nnnccanncc c 731

<210> 29
 <211> 822
 <212> DNA
 <213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(822)

<223> n = A,T,C or G

<400> 29

actagtcag	tgtggtggaa	ttccattgtg	ttgggggnnc	ttctatgant	antnttagat	60
cgctcanacc	tcacancctc	ccnancngc	ctataangaa	nannaataga	netgtncmt	120
atntntacnc	tcatanneet	cnnnacccac	tcctctctaa	ccntactgt	gcctatngcn	180
tnnctantct	ntgcgcctn	cnanccaccn	gtggggcnac	cnmngnatt	ctcnatctcc	240
tcnccatntn	gcctananta	ngtncatacc	ctatacctac	nccaatgcta	nnnctaancn	300
tcocatnantt	annntaacta	ccactgaent	ngactttcnc	atnancctct	aatttgaatc	360
tactctgact	cccacngcct	annnattage	ancttcccc	nacnatntct	caaccaaacc	420
ntcaaceacc	tactctanctg	ttcnccaaac	attncctccg	atccccnnac	aacccccctc	480
ccaaataccc	nccacctgac	ncctaaaccn	caccatcccg	gcaagccnan	gyncatttan	540
ccactgggat	cacnatngga	naaaaaaaac	ccnaactctc	tancncnnat	ctccctaana	600
aatnctcctn	naatttactn	ncantnccat	caancccaac	tgaaacnnaa	ccccgttttt	660
tanatccctt	ctttcgaaaa	ccnacccttt	annccccaa	ctttngggcc	ccccnctnc	720
ccnaatgaag	gnccccaat	cnangaaag	ncctngaaaa	ancnaggcna	anannntccg	780
canatcccat	cccttanttn	ggggnccctt	nccmngggcc	cc		822

<210> 30

<211> 787

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(787)

<223> n = A,T,C or G

<400> 30

cgcccgccctg	ctctggcaca	tgcctcctga	atggcatcaa	aagtgatgga	ntgcccatgg	60
ctagagaaga	ccttctctcc	tactgtcatt	atggagccct	gcagactgag	ggctcccttt	120
gtctgcagga	tttgatgtct	gaagtogtgg	agtgtggctt	ggagctcctc	atctacatna	180
getggaagcc	ctggaggggc	tctctcgcca	gcctccccct	tctctccaa	ctctccangg	240
acaccagggg	ctccaggcag	ccattattc	ccagnangac	atggtgtttc	tcacagcgga	300
cccattgggg	ctgnaaggcc	agggtctcct	ttgacacccat	ctctcccgct	ctgcttgga	360
ggcgtggga	tcactantt	ctanaacggg	ogccaccncg	gtgggagctc	cagcttttgt	420
tcctnttaat	gaagggtta	tgcncgcttg	gcgtaateat	nggtcanaac	tntttctgt	480
gtgaaattgt	ctntccccct	ncnattccnc	ncnscatacn	aaccccgaan	cataaagtgt	540
taaagcctgg	gggtngcctn	nngaataaac	tnaactcaat	taactgogtt	ggctcatggc	600
ccgctttccn	ttcnggaaaa	ctgtontccc	ctgonttntt	gaatcggcca	ccccccnggg	660
aaaagcgggt	tgcnttttng	gggntcctt	ccncttcccc	cctcnctaan	ccctnccgct	720
cggtcgttnc	nggtngcggg	gaangggnat	nnnctccccc	naagggggng	agnnngtat	780
ccccaaa						787

<210> 31

<211> 799

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(799)

<223> n = A,T,C or G

<400> 31

tctttttttt	tttttttggc	gatgctactg	tttaatttga	ggaggtgggg	gtgtgtgtac	60
catgtaccgg	ggctattaga	agcaagaagg	aaggaggagg	ggcagagcgc	cctgctgagc	120
aacaaaggac	tcctgcagcc	ttctctgtct	gtctcttggc	gcaggccacat	ggggaggcct	180
cccgaggggt	gggggcccac	agtcacgggg	tgaggagcact	acangggggtg	ggagtgggtg	240
gtggctggtn	cnaatggcct	gncacanatic	cctacgattc	ttgacacctg	gatttcacca	300
ggggaccttc	tgttctccca	nggnaacttc	ntnnatctcn	aaagaacaca	actgtttctt	360
cngcanttct	ggtgttccat	ggaaagcaca	ggtgtccnat	ctnggctggg	acttggtaca	420
tatggttccg	gcccacctct	ccntcnaaan	aagtaattca	cccccccccn	ccntctnttg	480
cctgggcccc	taantaacca	caccggaaact	canttantta	ttcctcttng	gntgggcttg	540
ntnatcnccn	cctgaangcg	ccaagttgaa	aggccacgcc	gtcccccttc	cccatagnan	600
ntttttnctt	canttaatgc	ccccccnggc	aacnatccaa	cccccccccn	tggggggccc	660
agcccaangc	cccgnctcg	ggnnccngn	cncgnantcc	ccaggmtctc	ccantcngnc	720
ccnnngcncc	ccgcacogca	gaacanaagg	ntngagccnc	cgcannnnnn	nggttnccac	780
ctcgcccccc	ccnnccngng					799

<210> 32

<211> 789

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(789)

<223> n = A,T,C or G

<400> 32

tttttttttt	tttttttttt	tttttttttt	tttttttttt	tttttttttt	tttttttttt	60
tttttccnag	ggcaggttta	ttgacaacct	cncgggacac	aancaggctg	gggacaggac	120
ggcaacaggg	tcggggggcg	goggcgggcg	cctacactgc	ggtaacaaat	ntgcagcttc	180
cgctcccgct	tgatnttctt	ctgcagctgc	aggatgcctt	aaaacagggc	ctogggccntn	240
ggtgggcaac	ctgggatttn	aatttccacg	ggcacaatgc	ggtogcance	cctcaccacc	300
nattaggaat	agtggtnnta	ccnccncccg	ttggencact	cccnttggaa	accacttntc	360
gpggtctcgg	catctggtct	taaaccttgc	aaacnctggg	gccctctttt	tggttantnt	420
ncnngccaca	atcatnactc	agactggcnc	gggctggccc	caaaaaanctn	ccccaaaaac	480
ggncatgtgc	ttncgggggt	tgtgcnatn	tnccatcaact	cccgggcnca	ncagggtcaac	540
ccaaaggttc	ttgngggccn	caaaaaanct	cccgggggnc	ccagtttcaa	caaagtcato	600
ccccctggcc	cccaaatcct	ccccccgntt	netgggtttg	ggaacccacg	cctctnnctt	660
tggngggcaa	gntggntccc	ccttcggggc	cccgggtggc	ccnctctaa	ngaaaacncc	720
ntcctnnnca	ccatcccccc	nnghnacgnc	tancaangna	tccctctttt	tanaaacggg	780
ccccccnccg						789

<210> 33

<211> 793

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(793)

<223> n = A,T,C or G

<400> 33

gacagaacat	gttggatggt	ggagcacctt	tctatacgac	tcacaggaca	gcagatgggg	60
aattcatggc	tgttggagca	atanaacccc	agttctacga	gctgctgac	aaaggacttg	120
gactaaagtc	tgatgaactt	cccaatcaga	tgagcatgga	tgattggcca	gaaatgaana	180
agaagtttgc	agatgtatct	gcaaaagaga	cgaaggcaga	gtggtgtcaa	atctttgacg	240
gcacagatgc	ctgtgtgact	cgggttctga	cttttgagga	ggttgttcat	catgatcaca	300
acaangaacg	gggtctgttt	atcaccantg	aggagcagga	cgtgagcccc	cgccctgcac	360

ctctgtgtgt	aaacacccca	gccatccctt	ctttcaaaa	ggatccacta	cttctagagc	420
ggncgccacc	ggggtggagc	ccagctttt	gttcccttta	gtgagggtta	attgcgcgct	480
tggogtaatc	atgggtcatan	ctgtttcttg	tgtgaasattg	ttatccgctc	acaattccac	540
acaacatacg	anccgggaagc	atnaaatctt	aaagcctggg	ggtngcctaa	tgantgaact	600
nactcacctt	aattggcttt	gcgcctactg	cccgttttcc	agtcgggaaa	acctgtcttt	660
gccagctgcc	nttaataaat	cnggccaccc	cccggggaaa	aggcngtttg	cttnttgggg	720
cgcctctccc	gctttctcgc	ctctgaant	ccttcccccc	ggtctttcgg	cttgoggcna	780
acggtatcna	cct					793

<210> 34

<211> 756

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> {1}... (756)

<223> n = A,T,C or G

<400> 34

gccgcgaccg	gcattgtacga	gcaactcaag	ggcgagtggg	accgtaaaag	ccccattctt	60
ancaagtgcg	gggaanagct	gggtcgactc	aagctagttc	ttctggagct	caacttcttg	120
ccaaccacag	ggaccaagct	garccaacag	cagctaattc	tggcccggtga	catactggag	180
atcgggggccc	aattggagcat	cctacgcaan	gacatccctt	ccttcgagcg	ctacatggcc	240
cagctcaaat	gtactactt	tgattacaan	gagcagctcc	cagagtcagc	ctatatgcac	300
cagctctctgg	gcctcaacct	cctcttctctg	ctgtcccaga	accgggtggc	tgantnccac	360
acggantttg	anccgctgcc	tgcaccaanga	catacanacc	aattgtctaca	tcnaccacca	420
gtgtccctgg	gcaatactga	tgganggcag	ctaccncaaa	gtnttctctg	ccnagggtaa	480
catcccccgc	cgagagctac	accttcttca	ttgacatctt	gctcgacact	atcagggatg	540
aaaatcgmg	ggttgctcca	gaaaggctnc	anaaanatcc	ttttcnctga	aggcccccgg	600
atnctnctagt	nttagaatcg	gcccgcctac	gggttggaac	ctccaaacct	tcgttncctt	660
ttactgagg	tttatggcg	cccttggegt	tatcatggte	acnccngttn	cctgtgttga	720
aattnttaac	ccccacacat	tccacgcena	catng			756

<210> 35

<211> 834

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> {1}... (834)

<223> n = A,T,C or G

<400> 35

ggggatctct	anactnacct	gnatgcattg	ttgtcgggtg	ggtcgcctgc	gatgaanagt	60
aacaggatct	tgcccttgaa	gctctgggt	gctgtnttta	agttgctcag	tctgcccgtca	120
tagtcagaca	cctctctggg	caaaaaaacan	caggatntga	gtcttgattt	caacctccat	180
aattcttcngg	gctgtctgct	cggtgaactc	gatgaonang	ggcagctggg	tgtgtntgat	240
aaantccanc	angttctctt	tggtagcttc	cccttcaaa	ttgttccggc	cttctctcaa	300
cttctnnaaa	angannncc	canctttgtc	gagctgggat	ttgganaaca	cgtcactgtt	360
ggaaactgat	cccaaatggg	atgtcatcca	tgcctctctc	tgccctgcaa	aaacttgctt	420
ggcncaaatc	cgactcccn	tccttgaaag	aagccnatca	caccccccctc	cctggactcc	480
nncaangact	ctnccgctnc	cccttccnng	cagggttggg	ggcannccgg	gcccctgcgc	540
ttcttcagcc	agttcacnat	nttcatcagc	ccctctgcca	gctgtnttat	tccttggggg	600
ggaanccgtc	tctcccttcc	tgaannaact	ttgacggtag	gaatagccgc	gentcncct	660
acntnctggg	ccgggttcaa	antccctccn	ttgcnnttcc	cctcggggca	ttctggattt	720
nnccnaacttt	ttcttctccc	cncocccnng	ngtttggntt	tttcatnggg	ccccaaactct	780

getotttggec antcccctgg gggcntntan cnecccctnt ggtcccntng gggc

834

<210> 36
 <211> 814
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1) ... (814)
 <223> n = A,T,C or G

<400> 36
 cggncgcttt cengcgcgc cccgtttcca tgacnaaggc tcccttcang ttaaatacnn 60
 cctagnaaac attaatgggt tgcctacta atacatcata cnaaccagta agcctgccc 120
 naecgccaac tcaggccatt cctaccaaag gaagaaaggc tgggtetctc acccctgtg 180
 ggaagggcct gccttgtaag acaccacaat neggetgaat ctnaagtcct gtgttttact 240
 aatggasaaa aaaaataaac aanaggtttt gttctcatgg ctgcccacog cagcctggca 300
 ctaaaacanc ccagcgctca cttctgcttg ganaaatatt ctttgcctt ttggacatca 360
 ggccttgatgg tatcactgcc acncttcac ccagctgggc nccctcccc catntttgtc 420
 antganctgg asggcctgaa ncttagcttc caaaagcttc ngcccacaag accggccacc 480
 agggggangtc ntttncagtg gatctgccc anantaccn tatcatcnn gaataaaaag 540
 gcccctgaac ganatgcttc cancanctt taagacccat aatcctngaa ccattggtg 600
 ctccggtct gatccnaag gaatgttctt ggtcccant cctcctttg ttctttact 660
 tgnnttgga ccttgctngn atnaccaan tganatccc ngaagcacc tccccctgg 720
 atttganttt cntaaattct ctgcctacn nctgaagca cnattcctn ggcncnaa 780
 gngaactca agaaggtctn ngaaaaacca cncn 814

<210> 37
 <211> 760
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1) ... (760)
 <223> n = A,T,C or G

<400> 37
 gcctgctgct ctccctcaaa gttgttcttg ctgccataac aaccaccata ggtaaagcgg 60
 gcgcagtgtt cgtgaagggt gttgtagtac cagcgcgga tgcctcctt gcagagtcct 120
 gtgtctggca ggtccacgca atgccccttg tcaactggga aatggatgog ctggagctcg 180
 tcnaanercac tctgtgattt ttcaacagca gctcctccg aagctccgg gcagttgggg 240
 gtgtcgtcac actccactaa actgtcgatn caccagccca ttgctgcagc ggaactgggt 300
 gggtgacag gtgcccagaa acactggatn ggcctttcca tggaggggccc tgggggaaat 360
 cncctnanc caaactgctt ctcaaaggcc accttgccca ccccgacagg ctagaatgc 420
 actcttcttc ccaaaggtag ttgttcttgt tggccaagca nctccanca aaccaaaanc 480
 ttgcaaaetc tgcctcgttg gggctcatnn taccanggtt ggggaaanaa accggcngn 540
 gancncctt gtttgaatgc naagynaata atcctcctgt ctltgcttggg tggaaagca 600
 caattgsact gttaacnttg ggcgngttc cncctnggtg gtctgaaact aatcacctc 660
 actgaaaaa ggtangtgc ttccttgaat tcccaaannt cccctngntt tgggtnttt 720
 ctctctncc ctaaaaatcg inttcccccc cctangggg 760

<210> 38
 <211> 724
 <212> DNA
 <213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(724)

<223> n = A,T,C or G

<400> 38

tttttttttt	tttttttttt	tttttttttt	tttttaaaaa	ccccctccat	tgaatgaaaa	60
cttccnaaat	tgtccaaccc	cctcnnccaa	atnnccattt	cggggggggg	gttccaaacc	120
caaattaatt	tggganttta	aattaaatnt	tnattngggg	anaaanccaa	atgtnaagaa	180
aatttaaccc	attatnaact	taaatnccctn	gaaacccctg	gnctccaaaa	atbtttaacc	240
cttaaatccc	tccgaaattg	ntaanggaaa	accaaatton	cctaaggctn	tttgaagggt	300
ngatttaaac	ccccctnant	tnttttnacc	cnnngnotnaa	ntatttngnt	tcgggtgttt	360
tcctnttaan	cntnggtaac	tcccgnatac	gaannnccct	aanccaatta	aacogaattt	420
tttttgaatt	ggaaattccn	ngggaattna	cgggggtttt	tcccttttgg	gggccaatcc	480
ccctttttcg	gggttttggg	ntagggttga	ttttttnang	ncccaaaaaa	nccccaanaa	540
aaaaaactcc	caagmnttaa	ttngaattnc	ccccctccca	ggccttttgg	gaaaggnggg	600
tttntggggg	cnggggantt	cattcccccn	ttncnccccc	ccccccnggt	aaanggttat	660
ngmntttggg	ttttgggccc	cttnanggac	cttccggatn	gaaattaaat	ccccgggnog	720
gccg						724

<210> 39

<211> 751

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(751)

<223> n = A,T,C or G

<400> 39

tttttttttt	ttttcttttg	ctcacattta	atttttattt	tgattttttt	taattgotgca	60
caacacaaata	tttatttcat	ttgtttcttt	tatttcatct	catctgtttg	ctgctgotgt	120
tttattttatt	tttactgaaa	gtgagaggga	acttttgttg	ccttttttcc	tttttctgta	180
ggccgcctta	agctttctaa	atttggaaca	totaagcaag	ctgaanggaa	aaggggggtt	240
cgcaaaatca	ctcgggggaa	nggaaagggt	gctttgttaa	tcctgacctc	tggtgggtga	300
ttaaatgctt	gtacaaattc	ntttcaattt	taattaattg	tgttnaangc	tttaattana	360
cttgggggtt	ccctccccan	accaaccccn	ctgacaaaaa	gtgocngccc	tcaaatnatg	420
tcccgccnt	cnttgaaaca	caengcngaa	ngttctcatt	ntccccncc	caggtnaaaa	480
tgaagggtta	ccatntttta	cncacccctc	acntggcnnn	gcttgaatcc	tcnaaaancc	540
ccctcaancc	aattntctng	ccccgggttc	gcntnngtcc	cnccegggtt	cggggaantn	600
cacccccnga	anncnntnnc	naacnaaatt	ccgaasatat	tcccnntcnc	tcaattcccc	660
cnnagactnt	cctcnncnan	cncattttcc	tttctntcac	gaacncgnnc	cnnaaaatgn	720
nnnnnccctc	cntngtccn	naatcnccan	c			751

<210> 40

<211> 753

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(753)

<223> n = A,T,C or G

<400> 40

gtggctatttt	ctgttaagatc	aggtgttctc	ccctcgtagg	tttagaggaa	acacccctcat	60
agatgaaaac	ccccccgaga	cagcagcact	gcaactgcca	agcagccggg	gtaggaggggg	120

cgccctatgc	acagctggggc	ccttgagaca	gcaggggttc	gatgtcaggc	togatgtcaa	180
tggtctggaa	gogggcgctg	tacctgcgta	ggggcacacc	gtcagggccc	accaggaact	240
tctcaaagtt	ccaggcaacn	tcgttgcgac	acacaggaga	ccagggtgatn	agcttggggt	300
cggtcataan	cggggbggcg	tcgtcgctgg	gagctggcag	ggcctcccg	aggaaggcna	360
ataaaagggtg	cgcccccgca	ccgttcanc	cgcacttctc	naanaccatg	angttgggct	420
onaacccacc	accannccgg	acttccttga	nggaattccc	aaatctcttc	gntcttgggc	480
ttctnctgat	gacctanctg	gttgcccnng	atgccaanca	cccccaancc	cgggggtcct	540
aaanccaccn	cctctctntt	tcatctgggt	cttctctccc	ggacctgggt	tctctcaag	600
ggancccata	tctcnaccan	tactcaccnt	ccccccct	gnaccacanc	cttctanngn	660
tcccncccg	nctctgggc	cttcaaan	gcttcacna	cctgggtctg	ccttcccccc	720
tnccctatct	gnacccmnc	tttgtctcan	tnt			753

<210> 41
 <211> 341
 <212> DNA
 <213> Homo sapien

<400> 41	
actataacca	tcacaaagga catgttctat cccatagact tcttgacata gcttcaaatg 60
agtgaaccca	tcttgatttt atatacatat atgttctcag tattttggga gcctttccac 120
ttctttaaac	cttggttcaat atgaacactg aaaataggaa tttgtgaaga gttaaaaagt 180
tatagcttgt	ttacgttagta agtttctgaa gtctacatte aatccagaca cttagttgag 240
tgtaaaactg	tgattttttaa aaaatatcat ttgagaatat tctttcagag gtattttcat 300
ttttactttt	tgatttaattg tgttttatat attagggtag t 341

<210> 42
 <211> 101
 <212> DNA
 <213> Homo sapien

<400> 42	
acttactgaa	tttagttctg tgccttctct tatttagtgt tgtatcataa ctactttgat 60
gtttcaaaaa	ttctaaataa ataattttca gtggcttcat a 101

<210> 43
 <211> 305
 <212> DNA
 <213> Homo sapien

<400> 43		
acatctttgt	tacagtctaa gatgtgttct taaatcacca ttccttctctg gtctcacc 60	
tccaggggtg	tctcacactg taattagagc tattgaggag tctttacagc aaattaagat 120	
tcagatgcct	tgctaagctt agagttctag agttatgttt cagaaagtct aagaaaccca 180	
cctcttgaga	ggtcagtaaa gaggacttaa tcttctatat ctacaaaatg accacaggat 240	
tggtacagag	acgagagtta tcttggtataa ctacagagctg agtacctgac cggggggcgc 300	
tcgaa		305

<210> 44
 <211> 852
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (852)
 <223> n = A, T, C or G

<400> 44

acataaataat	cagagaaaag	tagtctttga	aatactttag	tcagaggagt	ctttgtttct	60
gattatttgg	tgtgtgtttt	ggtttctgtc	caaagtattg	gcagcttcag	ttttcatttt	120
ctctccatcc	tcggggcatc	ttcccaaat	tatatccag	tcttcgtcca	tccacaogct	180
ccagaatttc	tctttttag	taatatctca	tagctcggct	gagcttttca	taggtcatgc	240
tgtgttgtt	cttcttttca	ccccatagct	gagccactgc	ctctgatttc	aagaacctga	300
agacgccctc	agatoggtct	tcccatttta	ttaactctgg	gttcttgtct	gggttcaaga	360
ggatgtcgcg	gatgaattcc	cataagttag	tccctctcgg	gttctgtctt	ttgggtgtgg	420
acttggcagg	ggggctcttgc	tcccttttca	tatcagggtga	ctctgcaaca	ggaaggtgac	480
tgtgtgttgt	catggagatc	tgagcccggc	agaaaghttt	gctgtccaac	aaatctactg	540
tgtatccata	gttgggtgtca	tataaatagt	tctngtcttt	ccaggtgttc	atgatggaag	600
gctcagtttg	ttcagtcctt	acaatgacat	tgtgtgttga	ctggaacagg	tcactactgc	660
actggccgtt	ccacttcaga	tgtgtcaagt	tgtcttagag	gagntgcgcc	gcogtccctg	720
cogcccggtt	gaactcctgc	aaactcatgc	tgcaaaaggtg	ctcgccgttg	atgtcgaact	780
cntggaaagg	gatacaattg	gcctccagct	ggttgggtgtc	caggagggtga	tggagccact	840
cccacacctg	gt					852

<210> 45

<211> 234

<212> DNA

<213> Homo sapien

<400> 45

acaacagacc	cttgcctcgt	aacgacctca	tgctratcaa	gttggacgaa	tcogtgtccg	60
agtctgacac	catccggagc	atcagcattg	cttcgcagtg	ccctaccccg	gggaactctt	120
gcctcgtttc	tggctggggg	ctgctggcga	acggcagaat	gcctacccgt	ctgcagtgcc	180
tgaacgtgtc	ggtgggtgct	gaggaggctc	gcagtaagct	ctatgaccgc	ctgt	234

<210> 46

<211> 590

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(590)

<223> n = A,T,C or G

<400> 46

acttcttatt	taaatgctta	taaggcagat	ctatgagaat	gatagaaaac	atgggtgtgt	60
atttgatagc	aatttttgg	agattacaga	gttttagtaa	ttaccaatta	cacagttaaa	120
aagaagataa	tatattccaa	gcanatacaa	aatatcta	gaaagatcaa	ggcaggaaaa	180
tgantataac	taattgacaa	tggaataatca	attttaatgt	gaattgcaca	ttatccttta	240
aaagctttca	aaanaaanaa	ttattgcagt	ctanttaatt	caaacagtgt	taaatgggtat	300
caggataaan	aactgaagg	caaaaagaat	taattttc	ttcatgtaac	ncaccanac	360
ttacaatggc	ttaaatgcan	ggaaaaagca	gtggaagtag	ggaagtanc	aaggtctttc	420
tggctctctaa	tctgccttac	tctttgggtg	tggctttgat	cctctggaga	cagctgccag	480
ggctcctgtt	atatccacaa	tcccagcagc	aagatgaagg	gatgaaaaag	gacacatgct	540
gccttccttc	gaggagactt	catctcactg	gccaaacactc	agtcacatgt		590

<210> 47

<211> 774

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(774)

<223> n = A,T,C or G

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<400> 47
acaagggggc ataatgaagg agtggggana gatttttaag aaggaaaaaa aaagaggccc      60
tgaacagaat ttctctgnac aacggggcctt caaaataatt ttcttgggga ggttcaagac      120
gcttcactgc ttgaaactta aatggatgtg ggacanaatt ttctgtaatg accctgaggg      180
cattacagac gggactcttg gaggaaggat aaacagaaag gggacaaaag ctaatcccaa      240
aacatcaaaag aaaggaaggt ggogtcatac ctcccagcct acacagttct ccagggctct      300
cctcctccct ggaggaagac agtggaggaa caactgacca tgtccccagg ctctgtgtgt      360
ctggctcctg gtcttcagcc ccagctctg gaagcccacc ctctgtgat cctggtggc      420
ccacactcct tgaacacaca tcccagggtt atctccttg acatggctga acctcctatt      480
cctacttccg agatgccttg ctccctgcag cctgtcaaaa tccactcac cctccaaacc      540
acggcatggg aagcctttct gacttgctg attactccag catcttgga caatccctga      600
ttcccacctc cttagaggca agataggggt gttaaagagta gggctggacc acttgagcc      660
aggctgtgtg cttcaaattn tggctcattt acgagctctg ggaaccttgg caagtnatct      720
tcacttttat gggcctcatt ttgttctacc tgcaaaatgg gggataataa tagt          774

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<210> 48

<211> 124

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> {1}...{124}

<223> n = A,T,C or G

<400> 48

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canazattga aattttataa aaaggcattt ttctcttata tccataaaat gatataattt      60
ctgcaantat anaaatgggt cataaattat aatgttctt aattacagct caacgcaact      120
tggt          124

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<210> 49

<211> 147

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> {1}...{147}

<223> n = A,T,C or G

<400> 49

```

gocgatgcta ctattttatt gcaggagggtg ggggtgtttt tattattctc tcaacagctt      60
tgtggctaca ggtgggtgtc gactgcatna aaaanttttt taagggtgat tgcaaaaatt      120
ttagggcacc catatcccaa gcaantgt          147

```

<210> 50

<211> 107

<212> DNA

<213> Homo sapien

<400> 50

```

acattaaatt aataaaagga ctgttgggggt tctgtcaaaa cacatggctt gatatatctc      60
atggttttag gttaggagga gttaggcata tgttttggga gaggggt          107

```

<210> 51

<211> 204

<212> DNA

<213> Homo sapien

<400> 51

gtcctaggaa	gtctagggga	cacacgactc	tggggtcacg	gggcggacac	acttgacgg	60
cggaaggga	aggcagagaa	gtgacacgt	cagggggaaa	tgacagaaag	gaaaatcag	120
gctttgcaag	gtcagaaag	ggactcagg	cttccaccac	agccctgccc	cacttggcca	180
cctccctttt	gggaccagca	atgt				204

<210> 52

<211> 491

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(491)

<223> n = A,T,C or G

<400> 52

acaaagataa	catttatctt	ataacaaaa	tttgatagtt	ttaaaggtta	gtattgtgta	60
gggtattttc	caaaagacta	aagagataac	tcaggtaaaa	agttagaaat	gtataaaaca	120
ccatcagaca	ggtttttaaa	aaacacata	ttacaaaatt	agacaatcat	ccttaaaaaa	180
aaaacttctt	gtatcaattt	cttttgttca	aatgactga	cctaantatt	tttaaatatt	240
tcanaaacac	ttcctcaaaa	atretcaana	tggtagcttt	canatgtncr	ctcagtcaca	300
atgttgctca	gataaataaa	tctcgtgaga	acttaccacc	caccacaage	tttctggggc	360
atgcaacagt	gtcttttctt	tnctttttct	tttttttttt	ttacaggcac	agaaactcat	420
caattttatt	tggataacaa	agggtctcca	aattatattg	aaaaataaat	cgaagttaat	480
atcactcttg	t					491

<210> 53

<211> 484

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(484)

<223> n = A,T,C or G

<400> 53

acataattta	gcagggetaa	ttaccataag	atgctattta	ttaanaggtn	tatgatctga	60
gtattaacag	tgcctgaagt	ttggatattt	catgcagcat	ttcttttttg	ctttgataac	120
actacagaac	crttaaggac	actgaaaatt	agtaagtaaa	gttcagaaac	attagctgct	180
caatcaaatc	tctacataac	actatagtaa	ttaaaacggt	aaaaaaaagt	gttgaaatct	240
gcactagtat	anacogctcc	tgtcaggata	anactgcttc	ggacagaaa	gggaaaaanc	300
agctttgant	ttcttctgtc	tgatangagg	aaaggctgaa	ttaccttggt	gcctctccct	360
aatgattggc	aggtcnggta	aatnccaaaa	catattccaa	ctcaacactt	cttttcnncg	420
tancctgant	ctgtgtattc	caggancagg	cggatggaat	gggccagccc	ncggatgttc	480
cant						484

<210> 54

<211> 151

<212> DNA

<213> Homo sapien

<400> 54

actaaacctc	gtgcttgtag	actccataca	gaaaacggcg	ccatccctga	acacggctgg	60
ccactgggta	tactgctgac	aaccgcaaca	acaaaaacac	aaatcccttg	cactggctag	120

tctatgtcct ctcaagtgcc tttttgtttg t 151

<210> 55
 <211> 91
 <212> DNA
 <213> Homo sapien

<400> 55
 acctggcttg totccgggtg gttcccggtg cccccacgg tccccagaac ggacactttc 60
 ggcctccagt ggcctactga gccaaagtgg t 91

<210> 56
 <211> 133
 <212> DNA
 <213> Homo sapien

<400> 56
 ggcggatgct cgttggttat atacaaatat gtcattttat gtaagggact tgagtatact 60
 tggatttttg gtattctgtg gttggggggg cgggtccagg accaataccc catggatacc 120
 aagggacacac tgt 133

<210> 57
 <211> 147
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(147)
 <223> n = A,T,C or G

<400> 57
 actctggaga acctgagccg ctgctccggc totgggatga ggtgatgan gengtggcgc 60
 gactgggagc tgagcccttc cttttgcgc tgcctcagag gattgttgcc gacntgcana 120
 tctcantggg ctggatncat gcagggt 147

<210> 58
 <211> 198
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(198)
 <223> n = A,T,C or G

<400> 58
 acagggatat aggtttnaag ttattgtnat tgtaaaatac attgaatttt ctgtatactc 60
 tgattacata catttatcct ttaaaaaaga tgtaaatcct aatttttatg ccattotatta 120
 atttaaccaat gagttacott gtaaatagaga agtcattgata gcactgaatt cttaactagtt 180
 ttgactttcta agtttgggt 198

<210> 59
 <211> 330
 <212> DNA
 <213> Homo sapien

<400> 59

acaacaaatg ggttgtgagg aagtcttata agcaaaactg gtgatggcta ctgaaaagat	60
ccattgaaaa ttatcattaa tgatttttaa tgacaaagta tcaaaaactc actcaatttt	120
cacctgtgct agcttgcata aatggggagt aactctagag caaatatagt atcttctgaa	180
tacagtcaat aaatgacaaa gccagggcct acaggtgggt tccagacttt ccagaccag	240
cagaaggaaat ctattttatc acatggatct cagtctgtgc tcaaaatacc taatgatatt	300
tttcgtcttt attggacttc ttgaagagt	330

<210> 60
 <211> 175
 <212> DNA
 <213> Homo sapien

<400> 60	
accgtgggtg cttctacat tctgacggc tcttcaaca acatctggtt ctacttcggo	60
gtcgtgggtc cttctcctt catctcctc cagctgggtc tgcctatoga ctttgcgcac	120
tcttgaacc agcgggtggt gggcaaggcc gaggagtgc attccgtgc ctggt	175

<210> 61
 <211> 154
 <212> DNA
 <213> Homo sapien

<400> 61	
acccactttt tctcctgtg agcagtctg acttctcact gctacatgat gagggtgagt	60
gggtgtgtgt cttcaacagt atctctccct ttcggatct gctgagccgg acagcagtgc	120
tggactgcac agccccgggg ctccacattg ctgt	154

<210> 62
 <211> 30
 <212> DNA
 <213> Homo sapien

<400> 62	
cgtctgagcc ctatagttag togtattaga	30

<210> 63
 <211> 89
 <212> DNA
 <213> Homo sapien

<400> 63	
acaagtcatt tcagcaccct ttgctcttca aaactgacaa tcttttatat ttaatgcttc	60
ctgtatgaat aaaaatgggt atgtcaagt	89

<210> 64
 <211> 97
 <212> DNA
 <213> Homo sapien

<400> 64	
accggagtaa ctgagtcggg acgtgaato tgaatccacc aataaataaa ggttctgcag	60
aatcagtgc tccaggattg gtcottggat ctgggggt	97

<210> 65
 <211> 377
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(377)
 <223> n = A,T,C or G

<400> 65
 acaacaanaa ntcccttctt taggccactg atggaaacct ggaacccctt tttgatggca 60
 gcattgggtc ctaggccctg acacagggc tgggggtttg gctntccaa accgcacacc 120
 ccaacccctg tctaccaca nttctggcta tgggtgtgt ctgccactga acatcaggg 180
 tgggtcataa natgaatcc caanggggac agaggctcagt agaggagct caatgagaa 240
 ggtgtgttt gtcagccag aaacagctg cctggcattc gccgtgac tatgaacccg 300
 tgggggtgaa ctaccccan gaggaatrat gcttgggca tgcaanggtg ccaacaggag 360
 gggggggagg agcatgt 377

<210> 66
 <211> 305
 <212> DNA
 <213> Homo sapien

<400> 66
 acgcctttcc ctacagaatc agggaaagaga ctgtogcctg ccttccctcg ttgttgctg 60
 agaaccctg tgcacctcc caccatctc accctcctc catctttgaa ctcaaacacg 120
 aggaactaac tgcacctgg tctctctcc agtccctcgt tccctccca tccctcact 180
 tctccactc taaggatct caacactgcc cagcacagg gacctgaatt tatgtggtt 240
 ttatatattt ttttaataaga tgcactttat gtcattttt aataaagtct gaagaattac 300
 tgttt 305

<210> 67
 <211> 385
 <212> DNA
 <213> Homo sapien

<400> 67
 actacacaca ctccacttgc ccttgtgaga cactttgtcc cagcacttta ggaatgctga 60
 ggtcggacca gccacatctc atgtgcaaga ttgccagca gacatcaggt ctgagagttc 120
 ccttttttaa aaaggggact tcttbaaaa agaagctctag ccacgattgt gtagagcagc 180
 tgtgtgtgtc tggagattca cttttgagag agttctctc tgagacctga tcttttagagg 240
 ctgggcagtc ttgcacatga gatggggctg gtctgatctc agcactcctt agtctgctt 300
 cctctccag ggcaccagc tggccacacc tgcctacagg gcactctcag atgccatac 360
 catagtttct gtgctagtgg accgt 385

<210> 68
 <211> 73
 <212> DNA
 <213> Homo sapien

<400> 68
 acttaaccag atatattttt accccagatg gggatattct ttgtaaaaaa tgaaaataaa 60
 gtttttttaa tgg 73

<210> 69
 <211> 536
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(536)

<223> n = A, T, C or G

<400> 69

actagtccag	tgtggtggaa	ttccattgtg	ttggggggctc	tcacccctoct	ctcctgcagc	60
tccagcttctg	tgctctgect	ctgaggagag	cattggccag	cattctgagta	ccctgctgct	120
cctgctggcc	accctagctg	tggccctggc	ctggagcccc	aaggaggagg	ataggataat	180
ccggggtggc	atctataag	cagacctcaa	tgatgagtgg	gtacagcgtg	cccttcaact	240
cgcctcagc	gagataaca	aggccacca	agatgactac	tacagacgtc	cgtgcccgtt	300
actaagagcc	aggcaacaga	ccgttggggg	ggtgaattac	ttcttcgacg	tagagggtgg	360
cogaaccata	tgtaccaagt	cccagcccaa	cttggacacc	tgtgcttcc	atgaacagcc	420
agaactgcag	aagaaacagt	tgtgctcttt	cgagatctac	gaagttccct	ggggagaaaa	480
gaangtccc	gggtgaatc	caggtgtcaa	gaatctctan	ggatctgttg	ccaggc	536

<210> 70

<211> 477

<212> DNA

<213> Homo sapien

<400> 70

atgaccccta	acagggggcc	tctcagccct	cctaattgac	tcgggctag	ccatgtgatt	60
tcacttccac	tcataaagc	tctcataact	aggctacta	accaacacac	taaccatata	120
ccaatgatgg	cgcgatgta	cacgagaaag	cacataccaa	ggccaccaca	caccacctgt	180
ccaaaaaggg	cttcgatacg	ggataatcct	atttattacc	tcagaagttt	ttttcttgcg	240
agggattttt	ctgagccttt	taccactcaa	gcctagcccc	taccccccaa	ctaggagggg	300
actggccccc	aacaggccac	accccgctaa	atccccatga	agtcaccatc	ctaaacacat	360
ccgtattact	cgcattcagg	gtatcaatca	cctgagctca	ccatagtcta	atagaaaaa	420
acogaaacca	aattattcaa	agcaactgct	attacaattt	tactgggtct	ctattttt	477

<210> 71

<211> 533

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> {1}...{533}

<223> n = A, T, C or G

<400> 71

agagctatag	gtacagtgtg	atctcagctt	tgcaaacaca	ttttctacat	agatagtact	60
aggtattaat	agatatgtaa	agaaagaaat	cacaccatta	ataatggtaa	gattcggttta	120
tgtgattttt	gtggatcttt	tggcaccctt	atatactgtt	tcacaaacttt	cagcagtgat	180
attattttcc	taacttcaaa	agtgaatttg	aaaaagaaaa	tctccagcaa	gcattctcatt	240
taaatcaagg	tttgtcatct	ttaaaaatat	agcaatctgt	gactttttca	aaaagctgtc	300
aataggtgt	gacctacta	ataattatta	gaatacatt	taaaaacatc	gagtacctoa	360
agtcagtttg	cottgaaaa	tatcaaatat	aactctttag	gaatgttaca	taaaagaatg	420
cttcgtaat	ttggagtang	aggttccctc	ctcaattttg	tattttttaa	aagtacatgg	480
taaaaaaaaa	aattcacaac	agtatataag	gctgtaaaa	gaagaattct	gcc	533

<210> 72

<211> 511

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> {1}...{511}

<223> n = A, T, C or G


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<400> 72
tattaaggaa aaacacacca cataattcaa ctancaaaga anactgcttc agggcggtga      60
aatgaaagg cttccaggca gttatctgat taaagaacac taaaagaggg acaaggctaa      120
aagcgcagg atgtctacac tatancaggc gctatttggg ttggctggag gagctgtgga      180
aaacatggan agattggtgc tgganacgc cgtggctatc cctcattgtt attacanaqt      240
gaggttctct gtgtgcccac tggtttgaaa accgttctnc aataatgata gaatagtaca      300
cacatgagaa ctgaaatggc ccaaacccag aaagaaagcc caactagatc ctcagaanac      360
gcttctaggg acaataaccg atgaagaaaa gatggcctcc ttgtgcccc gtctgttatg      420
attctctcc attgcagca naaacccgtt cttctaagca aacncagggt atgatggcna      480
aaataacccc cctcttgaag naccnggagg a                               511

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<210> 73
<211> 499
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1) ... (499)
<223> n = A,T,C or G

```

```

<400> 73
cagtgcagc actggtgcca gtaccagtae caataacagt gccagtgcca gtgccagcac      60
cagtgggtgg ttcagtgcct gtccagcct gaccgccaact ctacatttg ggtctctcgc      120
tggccttggg ggagctgggt ccagcaccag tggcagctct ggtgcctgtg gttctctcta      180
caagttagat tttagatatt gttaatctct ccagtcttct tcttcaagcc aggggtgcctc      240
ctcagaaccc tactcaacac agcactctag gcagccacta tcaatcaatt gaagttgaca      300
ctctgcatta aatctatttg ccattctctga aaaaaaaaaa aaaaaaaggg cggcgcctcg      360
antctagagg gcccgcttaa acccgctgat cagcctcgac tctgctctct anttgcagc      420
catctgttgt ttgcccctcc ccgntgcct tcttgaccc tggaaagtgc cactccact      480
gtcctttcct aantaatat

```

```

<210> 74
<211> 537
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1) ... (537)
<223> n = A,T,C or G

```

```

<400> 74
tttcatagga gaacacactg aggagatact tgaagaattt ggattcagcc gcaagagat      60
ttatcagctt aactcagata aaatcattga agttaataag gtaaaagcta gtctcttaact      120
tccagggccc cggctcaagt gaatttgaat actgcattta cagtgtagag taacacataa      180
cattgtatgc atggaacat ggaggaacag tattacagtg tcttaccact ctaatcaaga      240
aaagaattac agactctgat tctacagtga tgattgaatt ctaaaaatgg taatcattag      300
ggcttttgat ttataanaact ttgggtactt atactaaatt atggtagtta tactgccttc      360
cagtttgctt gatataattg ttgatattaa gattcttgac ttataatttg aatgggttct      420
actgaaaaan gaatgatata ttcttgaaga catogatata catttattta cactctctgat      480
tctacaatgt agaaaatgaa ggaatgccc caaattgtat ggtgataaaa gtcccgct      537

```

```

<210> 75
<211> 467
<212> DNA
<213> Homo sapien

```

<230>
 <221> misc_feature
 <222> (1)...(467)
 <223> n = A,T,C or G

<400> 75
 caaanacaat tgttcaaaag atgcaaatga tacactactg ctgcagctca caaacacctc 60
 tgcattattac acgtacctcc tcttgcctcc caagtagtgt ggtctatatt gccatcatca 120
 cctgctgtct gcttagaaga acggctttct gctgcaangg agagaaatca taacagacgg 180
 tggcacaagg aggccatctt ctcttcctcg gttattgtcc ctagaagcgt cttctgagga 240
 tctagttggg ctttctttct gggtttgggc catttcantt ctcatgtgtg tactattcta 300
 tcattcttgt ataacgggtt tcaaacnngt gggcancag agaacctcac tctgtaataa 360
 caatgaggaa tagccacggg gatctccagc accaaatctc tccatgttnt tccagagctc 420
 ctccagccaa cccaaatagc ogctgctatn gtgtagaaca tccctgn 467

<210> 76
 <211> 400
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(400)
 <223> n = A,T,C or G

<400> 76
 aagctgacag cattoggggc gagatgtctc gctccgtggc cttagctgtg ctgcgctac 60
 tctctcttcc tggcctggag gctatccagc gtactccaaa gattcaggtt tactcacgtc 120
 atccagcaga gaatggaaaag tcaaatctcc tgaattgcta tgtgtctggg ttctatccat 180
 ccgacattga agttgactta ctgaagcaat gagagagaat tgaaaaagtg gagcattcag 240
 acttgtcttt cagcaaggac tggctcttct atctcttgta ctacactgaa ttcccccca 300
 ctgaaaaaga tgagtatgco tgcctgtgtg accatgtgac tttgtcacag cccaagatng 360
 ttnagtggga toganacatg taagcagcan catgggaggt 400

<210> 77
 <211> 248
 <212> DNA
 <213> Homo sapien

<400> 77
 ctggagtgc ttggtgttcc aagccctgc aggaagcaga atgcaccttc tgaggcacct 60
 ccagctgccc cggcggggga tgcgaggtcc ggagcaccct tgcggggtg tgattgtgtc 120
 caggcaatgt tcatctcagc tttctgtcc ctttgcctcc ggcaagcgt tctgtctgaa 180
 gttcatatct ggagcctgat gtcttaacga ataaaggctc catgctccac ccgaaaaaaa 240
 aaaaaaaa 248

<210> 78
 <211> 201
 <212> DNA
 <213> Homo sapien

<400> 78
 actagtccag tgtgggtggaa ttccattgtg ttgggcccac cacaatggct acctttaaca 60
 tcacccagac cccgccttgc ccgtgcccc cgtgtgtgtt aacgacagta tgatgtttac 120
 tctgtacttc ggaaactatt ttatgtat taatgtatgc tttcttgttt ataaatgcct 180
 gatttaaaaa aaaaaaaaaa a 201

<210> 79
 <211> 552
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(552)
 <223> n = A,T,C or G

<400> 79
 tccttttcgtt aggtttttbga gacaaccccta gacctaaact gtgtcacaga cttctgaatg 60
 ttttaggcagc gctagtaatt tctctgtaant gattctgtta ttactttcct attctttatt 120
 cctctttctt ctgaagatta atgaagttga aaattgaggt ggataaatac aaaaaggtag 180
 tgtgatagta taagtatcta agtgcagatg aaagtgtgtt atatatatcc attcaaaatt 240
 atgcaagtta gtaattactc agggtttaact aaattacttc aatatgctgt tgaacctact 300
 ctgttccttg gctagaaaaa attataaaca ggacttttgt agtttgggaa gccaaattga 360
 taatattcta tgttctaaaa gttgggctat acctaaanta tnaagaaata tggactttta 420
 tccccaggaa tatgggggtc atttatgaat antacccggg anagaagttt tgantnaaac 480
 ongttttggg taatacgtta atatgtctcn aatnaacaag gcntgactta ttccaaaaaa 540
 aaaaaaaaaa aa 552

<210> 80
 <211> 476
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(476)
 <223> n = A,T,C or G

<400> 80
 acagggattt gagatgctaa ggccccagag atcgtttgat ccaacctctt tattttcaga 60
 ggggaaaaatg gggcctagaa gttacagagc atctagctgg tgccttgga cccctggcct 120
 cacacagact cccgagtagc tgggactaca ggcacacagt cactgaagca ggcctgtttt 180
 gcaattcacg ttgccacotc caacttaaac attcttcata tgtgatgtcc ttagtactta 240
 aggttaaaact ttcccaccca gaaaaggcaa cttagataaa atcttagagt actttcatac 300
 tcttctaagt cctcttcacg cctcactttg agtctctctt gggggttgat aggaantntc 360
 tcttggcttt ctcaataaaa tctctatcca tctcatgttt aatttggtae gcntaaaaat 420
 gctgaaaaaa ttaaaatggt ctgggttcnc tttaaaaaaa aaaaaa 476

<210> 81
 <211> 232
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(232)
 <223> n = A,T,C or G

<400> 81
 tttttttttg tatgcctcn ctgtggngtt attgttgcct ccaccttga ggagccagc 60
 ttcttctgta cttttctttt ctgggggato ttcttggctc tgccctcca ttcccagcct 120
 ctcatcccca tcttgcaatt ttgttagggt tggaggcact ttcttggtag cccctcagag 180
 actcagtcag cgggaataag tcttaggggt ggggggtgtg gcaagccggc ct 232

<210> 82
 <211> 383
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(383)
 <223> n = A,T,C or G

<400> 82
 aggggggagc agaagctaaa gccaaagccc aagaagagtg gcagtgccag cactgggtgcc 60
 agtaccagta ccaataacat gccagtgccc gtgccagcac cagtgggtggc ttccagtgtg 120
 gtgccagcct gaccgccact ctcaactttg ggctcttcgc tggccttggg ggagctgggtg 180
 ccagcaccag tggcagctct ggtgcctgtg gtttctccta caagtggatg tttagatatt 240
 gttaatcctg ccagtccttc tcttcaagcc aggggtgcac ctccagaacc tactcaaac 300
 agcactctng gcagccacta tcaatcaatt gaagttgaca ctctgcatta aatctatttg 360
 ccatttcaaa aaaaaaaaaa aaa 383

<210> 83
 <211> 494
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> {1}...(494)
 <223> n = A,T,C or G

<400> 83
 accgaattgg gaccgctggc ttataagcga tcattgtctc cagtattacc tcaacggagca 60
 gggagatcga gtctatacgc tgaagaattt tgacccgatg ggacacacaga cctgtctcagc 120
 ccactctgct cggctctccc cagatgacaa atactctcga caccgaaatca ccataagaa 180
 acgcttcaag gtgctcatga ccagcaacc gcgcctgtc ctctgagggt ccttaaaactg 240
 atgtcttttc tgcacactgt taccctctgg agactcctga acccaactct tcggactgtg 300
 agcctgatg ccttttttgc agccatactc ttggcctcc agtctctcgt ggcgattgat 360
 tatgtttgtg tgaggcaatc atggtggcat caccatnaa gggaaacacat ttgattttt 420
 tttcncatat tttaattac naccagaata ntccagaata aatgaattga aaaactctta 480
 aaaaaaaaaa aaaa 494

<210> 84
 <211> 380
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(380)
 <223> n = A,T,C or G

<400> 84
 gctggtagcc tatggcgtgg ccacggangg gctcctgagg caccgggacag tgacttccca 60
 agtatcctgc gccgcgtctt ctaccgtccc taccctgcaga tcttcgggca gattcccccag 120
 gaggacatgg acgtggccct catggagcac agcaactgct cgtcggagcc cggcttctgg 180
 gcacacccct ctggggccca ggcgggcacc tgcgtctccc agtatgccaa ctggcctggg 240
 gtgctgctcc tegtcatctt cctgctcgtg gccaacatcc tgcctggteac ttgctcattg 300
 ccattgtcag ttacacattc ggcaaagtac agggcaacag cnatctctac tgggaaggcc 360
 agcgttncgg cctcatcggg 380

<210> 85
 <211> 481
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(481)
 <223> n = A,T,C or G

<400> 85
 gagttagctc ctccacaacc ttgatgaggt cgtctgcagt ggcctctcgc tteataccgc 60
 tnccatcgtc atactgtagg ttbgccacca cctectgcat ctggggcgcg ctaatatcca 120
 ggaaactctc aatcaagtc aagtcnatna aacctgtggc tggttctgtc tcccgctcgg 180
 tgtgaaagga totccagaag gagtgcctga tcttccccac acttttgatg actttattga 240
 gtcgattctg catgtccagc aggaggttgt accagctctc tgcagtgag gtcaccagcc 300
 ctatcatgcr ntgaacgtg ccgaagaaca cagagccttg tgtggggggg gnagtctcac 360
 ccagattctg cattaocaga naggcgtggc aaaaganatt gacaactcgc ccaggngaa 420
 aaagaacacc tcttggaagt gctngcgcgt cctcgteent tggtggnngc gcntnccctt 480
 t 481

<210> 86
 <211> 472
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(472)
 <223> n = A,T,C or G

<400> 86
 aacatcttcc tgtataatgc tgtgtaatat cgatccgatn ttgtctgctg agaattccatt 60
 acttggaaaa gcaacttnaa gcctgggacac tggatttaaa attcacaata tgcaacactt 120
 taacacagtgt gtcaatctgc tcccttactt tgtcatcacc agtctgggaa taagggtatg 180
 ccttatccac acctgtttaa agggcgctaa gcatttttga tccaacatct tttttcttga 240
 cacaagtccg aaaaaagcaa aagtaaacag tcnttaattt gttagccnab tcaatttctt 300
 catgggacag agccatttga tttaaaaagc aaattgcata atattgagct ttggggagctg 360
 atatntgagc ggaagantag cttttctact tcaccagaca caactccttt catattggga 420
 tgttnacnaa agttatgtct cttacagatg ggatgctttt gtggcaattc tg 472

<210> 87
 <211> 413
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(413)
 <223> n = A,T,C or G

<400> 87
 agaaaccagt atctctnaaa acaacctctc ataccttgtg gacctaatth tgtgtgogtg 60
 tgtgtgtgcg cgcataattat atagacgggc acatcttttt tacttttgta aaagcttatg 120
 cctcttttgt atctatactt gtgaaagttt taatgatctg ccataatgtc ttgggggacct 180
 ttgtcttctg tgtaaatggt actagagaaa acacctatnc tatgagtrca tctagttngt 240
 tttattcgac atgaaggaaa tttccagatn acaacactna caaactctcc cttgactagg 300

```

ggggacaaag aaaaacanaa ctgaacatna gaacaacttn cctgggtgaga aattncataa 360
acagaatttg ggtngtatat tgaaanang catcattnaa acgttttttt ttt 413

```

```

<210> 88
<211> 448
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(448)
<223> n = A,T,C or G

```

```

<400> 88
cgcagcgggt cctctctatc tagctccage ctctcgcttg cccactccc cgcgtccgcg 60
gtcctagcon accatggcog ggcctctgag cgcctcgctg cctctgctgg ccctcctggc 120
cgtggccctg gccgtgagcc cgcggtggcg ctccagtcce ggcaagccgc cgcgctgggt 180
gggaggccca tggacccgcg gtggaagaag aaggtgtgag gcgtgcactg gactttgcgc 240
tcggcnanta caacaacccc gcaacnactt ttacnagon cgcgtgcag gtgtgcccgc 300
cccaancaaa ttgttactng gggtaantaa ttcttggaag ttgaacctgg gccaaacnng 360
tttaccagaa ccnagccaat tngaacaatt nccctccat aacagccctt cttaaaaagg 420
gaancantcc tgnctctttt caaatttt 448

```

```

<210> 89
<211> 463
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(463)
<223> n = A,T,C or G

```

```

<400> 89
gaattttgtg cactggccac tgtgatggaa coattgggac aggatgcttt gagttcatca 60
gtagtgtatc tgcacaaagt ggtgttgtta catgagtatg taaaatgtca aaaaatttagc 120
agaggtctag gtctgcatac cagcagacag ttgtctcgtg tatctttgtg ccttgaagtt 180
ctcagtgcac agttnnttct gatgcgaagt tctnattcca gtgttttagt cctttgcctc 240
tttnatgtn agacttgcct ctctnaaatt gcttttgtnt tctgcaggta ctatctgtgg 300
tttaaaaaa tagaannact tctctgcttn gaanatttga atatottaca cctnaaaatn 360
aattctctcc coatannaaa acccangccc ttggganaat ttgaaaaang gntccttcnn 420
aattcnana anttcagntn tcatacaaca naacngganc ccc 463

```

```

<210> 90
<211> 400
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(400)
<223> n = A,T,C or G

```

```

<400> 90
agggattgaa ggtctnttnt actgtcggac tgttcaccca ccaactctac aagttgttgt 60
cttcacttca ctgtctgtta gcntnttaac ccagactgta tcttcataaa tagaaccaat 120
tcttcaccag tcacatcttc taggaccttt ttggattcag ttagcataag ctcttccact 180
tcctttgtta agacttcate tggtaaagtc ttaagtcttg tagaaaggaa tttaatctgt 240

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cgttctctaa caatgtctc tccttgaagt atttggctga acaacccacc tnaagtcctt	300
ttgtgcatcc atttkaata tacttaatat ggcattggtt cactagggtt aattctgcaa	360
gagtcactct tctgcaaaag ttgogttagt atatctgcca	400

<210> 91

<211> 480

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (480)

<223> n = A,T,C or G

<400> 91

gagctcggat ccaataatct ttgtctgagg gcagcacaca tatncagtgc catgynaact	60
ggctaccccc acatggggagc agcatgccgt agntatataa ggctcattccc tgagtcagac	120
atgcctcttt gactacogtg tgccagtgct ggtgattctc acacacctcc nncogctctt	180
tgtggaaaaa ctggcacttg nctggaaacta gcaagacatc acttacaaat tcacccacga	240
gcacattgaa aggtgtaaca aagcgactct tgcattgctt ttgtccctc cggcaccagt	300
tgtrcaatact aacccgctgg ttgctctcca tcacatttgt gatctgtagc tctggataca	360
tctcctgaca gtactgaaga acttctctct ttgtttcaaa agcaactctt ggtgcctgtt	420
ngatcagggtt cccatttccc agtcggaatg ttccataggg ataenttact tccccaaaa	480

<210> 92

<211> 477

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (477)

<223> n = A,T,C or G

<400> 92

atacagcccc natcccacca cgaagatgog cttgttgact gagaacctga tgcgggtcact	60
ggctccogctg tagcccccagc gactctccac ctgctgggaag cggttgatgc tgcactcctt	120
cccacgcagg cagcagcggg gccgggtcaat gaactccact cgtggcttgg ggttgacgggt	180
taantgcagg aagaggctga ccacctcgog gtccaccagg atgcccagct gtgcgggacc	240
tgacagaaaa ctctctgatg gtcatgagcg ggaagcgaat gangcccagg gccttgccca	300
gaaccttccg cctgttctct ggcgtcacct gcagctgctg ccgttnacac tgggcctcgg	360
accagcggac aaacggcggt gaacagccgc acctcacgga tgccantgt gtccgcctcc	420
aggaacggcn ccagcgtgtc caggtcaatg tcggtgaanc ctccgogggt aatggog	477

<210> 93

<211> 377

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (377)

<223> n = A,T,C or G

<400> 93

gaacggctgg accttgcttc gaattgtgtt gctggcagga ataccttggc aagcagctcc	60
agtcagagca gccccagacc gctgcggccc gaagctaagg ctgcctctgg ccttccccctc	120
cgcctcaatg cagaaccant agtgggagca ctgtgttttag agttaagagt gaacactgtn	180

tgattttact	tgggaatttc	ctctgttata	tgatttttc	caatgcta	ttccaaacaa	240
caacaacaaa	ataacatgtt	tgctgtttna	gttgtatata	agtangtgat	tctgtatnta	300
aagaaatat	tactgttata	tatactgctt	gcaanttctg	tatttatagg	enctctggaa	360
ataaatatat	tattaaa					377

<210> 94
 <211> 495
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(495)
 <223> n = A,T,C or G

ccctttgagg	gggttagggc	cagttcccaag	tggagaagac	agccaggag	aantgogtgc	60
cgagctgang	cagatttccc	acagtgaccc	cagagccctg	ggtatagtc	tctgacccct	120
ccaaggaaag	accaccttct	ggggacatgg	gctggagggr	aggacctaga	ggcaccacgg	180
gaaggcccca	ttccggggct	gttccccgag	gaggaaggga	aggggctctg	tgtgcccccc	240
acgaggaana	ggccctgant	cctgggatoa	nacacccctt	caagtgtatc	cccacacaaa	300
tgaagctca	ccaagggtcc	ctctcagtc	cttccctaca	ccctgaacgg	ncactggccc	360
acacccarcc	agancancca	cccgccatgg	ggaatgtnc	caaggaaatcg	cngggcaacg	420
tggactctng	tccnnaagg	gggcagaatc	tccaatagan	gganngaacc	cttgcctnana	480
aaaaaaaaaa	aaaaa					495

<210> 95
 <211> 472
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(472)
 <223> n = A,T,C or G

ggttacttgg	tttcaattgc	accacttagt	ggatgtcaat	tagaaccatt	ttgtctgtct	60
cctctggaag	ccctgggcag	agcggacttt	gtaattgttg	gagaataact	gctgaatttt	120
tagctgtttt	gagttgatcc	gcacccactg	accacaactc	aatatgaaaa	ctatttnact	180
tatttatatt	cttgtgaaaa	gtatacaatg	aaaattttgt	tcatactgta	tttatcaagt	240
atgatgaaaa	gcaatagata	tatatctttt	tattatgttn	aattatgatt	gccattatta	300
atcggaaaaa	tgtggagtgt	atgttcotttt	cacagtaata	tatgcotttt	gtaacttcac	360
ttggttattt	tattgtaaat	gaattacaaa	attcttaatt	taagaaatcg	gtangttata	420
ttanttcn	taattttctt	ccttgtttac	gttaattttg	aaagaatgc	at	472

<210> 96
 <211> 476
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(476)
 <223> n = A,T,C or G

ctgaagcatt	tcttcaaaact	tntctacttt	tgtaattgat	acctgtagta	agttgacaat	60
------------	-------------	------------	------------	------------	------------	----


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gtgggtgaaat ttcaaaatta tatgtaactt ctactagttt tactttctcc cccaagtctt 120
ttttaactca tgattttttac acacacacac cagaacttat tatatagcct ctaagtcttt 180
attcttcaca gtagatgatg aaagagtcct ccagtgtctt gngcanaatg ttctagntat 240
agctggatac atacngtggg agttctataa aotcatacct cagtgggact naaccsaaat 300
tgtgttagtc tcaattccta ccacactgag ggagcctccc aaatcactat attcttatct 360
gcaggctactc ctccagaaa aacngacaggg caggcttgca tgaanaagtn acatctgogt 420
tacaaggtct atcttctcca nangtctgtn aaggaacaat ttaattctct agcttt 476

```

```

<210> 97
<211> 479
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> {1}...[479]
<223> n = A,T,C or G

```

```

<400> 97
aotctttcta atgtgatata gatcttgagt ataagaatgc atatgtcact agaattggata 60
aaataatgct gcaaaactta tgctcttatg caaaatggaa cgttaatgaa acacagctta 120
caatcgcaaa tcaaaactca caagtgtctc tctgttgtag atttagtgta ataagactta 180
gattgtgctc ctccggatata gattgtttct canatcttgg gcaatntcc ttagtcaaat 240
caggctacta gaattctgtt attgatata tgagagcatg aaatttttaa naatacaactt 300
gtgattatna aattaatcac aaatttcaat tatccttgc atcagcagct agaaaaaat 360
ntnnttttta natcaagta ttttgtgttt ggaantgtn aaatgaaatc tgaatgtggg 420
ttcatctta ttttttccn gacnactant tntcttttta gggmctatcc tganccatc 479

```

```

<210> 98
<211> 461
<212> DNA
<213> Homo sapien

```

```

<400> 98
agtgaacttgt cctccaacaa aacccttga tcaagtttgt ggcactgaca atcagacctt 60
tgctagtctc tgctcatctat tgcctactaa atgcagactg gaggggacca aaabggggca 120
tcaactocag ctggattatt ttggagcctg caaatctatt cctacttgta cggactttga 180
agtgattcag ttctctctac ggatgagaga ctggctcaag aatctctca tgcagcttta 240
tgaagccact ctgaacacgc tggttatcta gatgagaaca gagaataaa gtcagaaaat 300
ttactctggag aaaagaggct ttggctgggg accatcccat tgaaccttct cttaaggact 360
ttaagaaaaa ctaccacatg ttgtgtatcc tggtgccggc cgtttatgaa ctgaccaacc 420
tttggaaata tcttgacgct cctgaacttg ctctctgcg a 461

```

```

<210> 99
<211> 171
<212> DNA
<213> Homo sapien

```

```

<400> 99
gtggcgcgcgc gcagggtgttt cctcgtaccg cagggcctcc tcccttccc aggrgtccct 60
cggcgcctct gcgggcccga ggaggagcgg ctggcgggtg gggggagtgt gacccacct 120
cggtgagaab agccttctct agcgtatctga gaggcgtgcc ttgggggtac c 171

```

```

<210> 100
<211> 269
<212> DNA
<213> Homo sapien

```

<400> 100

cgcccgcaag	tgcaactcca	gctggggccg	tgccggacgaa	gattctgcca	gcagttggtc	60
cgactggag	gacggcgccg	gcgacagtcg	caggtgcagc	gcggggcgcc	gggggtcttc	120
aaggctgagc	tgacgcggca	gaggtcgtgt	cacgtcccac	gaccttgacg	ccgtcgggga	180
cagccggaac	agagcccggt	gaagcgggag	gcctcgggga	gcccccggg	aaggcgggcc	240
cgagagatac	gcaggtgcag	gtggccgcc				269

<210> 101

<211> 405

<212> DNA

<213> Homo sapien

<400> 101

tttttttttt	ttttgggaatc	tactgcgagc	acagcaggtc	agcaacaagt	ttatttttga	60
gctagcaagg	taacagggta	gggcattggt	acatgttcag	gtcaacttcc	tttgtcgtgg	120
ttgattgggt	tgtcttttatg	ggggcggggt	ggggtagggg	aaacgaagca	aataacatgg	180
agtgggtgca	cctccctgt	agaacrtgg	tacaaagctt	gggycagttc	acctggctctg	240
tgacctcat	ttcttgaca	tcaatgttat	tagaagtcag	gatctctttt	agagagtcca	300
ctgttctgga	gggagattag	ggtttcttgc	caaatccaac	aaatccact	gaaaaagttg	360
gatgatcgt	acgaataccg	aggaatattc	tcatatcggg	ggcca		405

<210> 102

<211> 470

<212> DNA

<213> Homo sapien

<400> 102

tttttttttt	ttttcttttt	tttttttttt	tttttttttt	tttttttttt	tttttttttt	60
ggcacttaac	ccatttttat	ttcaaaatgt	ctacaaatct	aatcccatta	tacggctattt	120
tcaaaatcta	atttcttcaa	attagccaaa	tccttaccaa	ataataccca	aaaatcaaaa	180
atatacttct	ttcagcaaac	ttgttacata	aattaaaaaa	atataacggg	ctgggtgtttt	240
caaagtacaa	ttatcttaac	actgcaaaac	ttttaaggaa	ctaaaataaa	aaaaaacact	300
ccgcaaaagg	taaagggnac	aacaaattct	tttaccacac	cattataaaa	atcatctctc	360
aaatctttag	ggaaatctata	cttcaacagg	gatcttcaac	tttactcact	ttgttttattt	420
ttttaaacca	ttgtttgggc	ccaacacaat	ggaatccccc	ctggactagt		470

<210> 103

<211> 581

<212> DNA

<213> Homo sapien

<400> 103

tttttttttt	ttttttttga	ccccctctt	ataaaaaaca	agttaccatt	ttattttact	60
tacacatatt	tattttataa	ttggatttag	atattcaaaa	ggcagctttt	aaaatcaaac	120
taaatggaaa	ctgccttaga	tacataatto	ttaggaaatta	gcttaaaatc	tgccataagt	180
gaaaatcttc	tctagctctt	ttgactgtaa	atttttgact	cttgtaaaaac	atcccaattc	240
atttttcttg	tcttttaaaat	tatctaatac	ttccattttt	tccctatttc	aagtcaattt	300
gcttctctag	cctcatttcc	tagctcttat	ctactatttag	taagtggctt	ttttcctaaa	360
agggaaaaaa	gggaagagaaa	tggcacacaa	aacaaacatt	ttatattcat	atttctaccc	420
acgttaataa	aatagcattt	tgtgaagcca	gctcaaaaaga	aggcttagat	ccttttatgt	480
ccatttttagt	cactaaacga	tatcaaaagt	ccagaatgca	aaagggttgt	gaacatttat	540
tcaaaagcta	atataagata	tttcacatac	tcactcttct	g		581

<210> 104

<211> 578

<212> DNA

<213> Homo sapien

<400> 104

tttttttttt	tttttttttt	tttttttttt	cttttttttt	gaaatgagga	togagtcttt	60
cactctctag	atagggcctg	aagaaaaactc	atctttccag	ctttaaaata	acaatcaaat	120
ctctctatgt	atatcatatt	ttaagttaaa	ctaattgagtc	actgggttat	cttctcctga	180
aggaaatctg	ttcattcttc	tcattcatat	agttatatca	agtactaact	tgcataattga	240
gagggttttt	ttctctattt	acacatatac	ttccatgtga	atttgtatca	aacctttatt	300
ttcatgcaaa	ctagaaaata	atgtttcttt	tgcataagag	aagagaaaca	tatagcatta	360
caaaactgct	caaatctgtt	gttaagttat	ccattataat	tagttggcag	gagctaatac	420
aaatcacatt	targacagca	atcataaaac	tgaagtacca	gttasataac	caaatcaatt	480
aaaggaacat	ttttagcctg	ggtataatta	gctaattcac	cttacaagca	tttactagaa	540
tgaattcaca	tgttattatt	ctagcccaa	cacaatgg			578

<210> 105

<211> 538

<212> DNA

<213> Homo sapien

<400> 105

tttttttttt	tttttcagta	ataatcagaa	caatatttat	ttttatattt	aaaattcata	60
gaaaagtgc	ttacatttaa	taaaagtctg	ttctcctaaag	tgatcagagg	aattagatat	120
gtcttgaaca	ccaatattaa	tttgaggaaa	atacaccnaa	atacattaag	taaatatttt	180
aagatcatag	agcttgtaag	tgaagaagata	aaatttgacc	tcagaacctc	tgagcatcaa	240
aaatccacta	ttagcaasta	aattactatg	gacttcttgc	tttaactttg	tgatgaatat	300
ggggtgtcac	tggtaaaaca	acacattctg	aaggatacat	tacttagtga	tagattctta	360
tgtactctgc	taatacgtgg	atatgagttg	acaagtttct	ctttcttcaa	ctttttaagg	420
ggcgagaaat	gagggaagaaa	agaaaaggat	tacgcatact	gttctttcta	tggaaggatt	480
agatatgttt	cttttgccaa	tattaaaaaa	ataataatgt	ttactactag	tgaaaccc	538

<210> 106

<211> 473

<212> DNA

<213> Homo sapien

<400> 106

tttttttttt	tttttttagtc	aagtttctat	ttttattata	attaaagctc	tggtcatttc	60
atttacttagc	tcgtcaactc	acatatttaa	attaaagaaa	cgttttagac	aaactgtacaa	120
tttataaatg	taagggtgcca	ttattgagta	atatactcct	ccaagagtg	atgtgtccct	180
tctcccacca	actaatgaac	agcaacatta	gtttaatttt	attagtagat	atacactgct	240
gcaaacgcta	attctctctc	ccatccccat	gtgatattgt	gtatatgtgt	gagttggtag	300
aatgcatcac	aactctcaac	caacagcgaag	atgaagctag	gctgggcttt	cggctgaatat	360
agactgtgtc	tgtctgaatc	aaatgatctg	acctatcttc	ggtggcaga	actcttcgaa	420
ccgcttcttc	aaaggcgctg	ccacatttgc	ggctctttgc	acttgtttca	aaa	473

<210> 107

<211> 1621

<212> DNA

<213> Homo sapien

<400> 107

cgccatggca	ctgcaggcca	tctcggtcat	ggagctgtcc	ggcctggccc	cgggcccgtt	60
ctgtgctatg	gtcctggctg	acttcggggc	gcgtgtggta	cgcgtggacc	ggcccggctc	120
crgctacgac	gtgagccgct	tgggcccggg	caagcgctcg	ctagtgtctg	acctgaagca	180
gcgcggggga	gcgcgcgtgc	tgcggcgctc	gtgcaagcgg	tcggatgtgc	tgcctggagcc	240
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tcaaaggctt	atttatgcga	ggctgagtg	atttggccag	tcagggaagct	tctgcgggtt	360
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<210> 108

<211> 382

<212> PRT

<213> Homo sapien

<400> 108

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	50					55					60				
Val	Leu	Arg	Arg	Leu	Cys	Lys	Arg	Ser	Asp	Val	Leu	Leu	Glu	Pro	Phe
	55				70				75					80	
Arg	Arg	Gly	Val	Met	Glu	Lys	Leu	Gln	Leu	Gly	Pro	Glu	Ile	Leu	Gln
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Arg	Glu	Asn	Pro	Arg	Leu	Ile	Tyr	Ala	Arg	Leu	Ser	Gly	Phe	Gly	Gln
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Ala	Pro	Leu	Asn	Leu	Leu	Ala	Asp	Phe	Ala	Gly	Gly	Gly	Leu	Met	Cys
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Ala	Leu	Gly	Ile	Ile	Met	Ala	Leu	Phe	Asp	Arg	Thr	Arg	Thr	Asp	Lys
			165					170						175	
Gly	Gln	Val	Ile	Asp	Ala	Asn	Met	Val	Glu	Gly	Thr	Ala	Tyr	Leu	Ser
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Ser	Phe	Leu	Trp	Lys	Thr	Gln	Lys	Ser	Ser	Leu	Trp	Glu	Ala	Pro	Arg
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Thr	Ala	Asp	Gly	Glu	Phe	Met	Ala	Val	Gly	Ala	Ile	Glu	Pro	Gln	Phe
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Tyr	Glu	Leu	Leu	Ile	Lys	Gly	Leu	Gly	Leu	Lys	Ser	Asp	Glu	Leu	Pro
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Asn	Gln	Met	Ser	Met	Asp	Asp	Trp	Pro	Glu	Met	Lys	Lys	Lys	Phe	Ala
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Asp	Val	Phe	Ala	Lys	Lys	Thr	Lys	Ala	Glu	Trp	Cys	Gln	Ile	Phe	Asp
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Gly	Thr	Asp	Ala	Cys	Val	Thr	Pro	Val	Leu	Thr	Phe	Glu	Glu	Val	Val
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His	His	Asp	His	Asn	Lys	Glu	Arg	Gly	Ser	Phe	Ile	Thr	Ser	Glu	Glu
305				310					315					320	
Gln	Asp	Val	Ser	Pro	Arg	Pro	Ala	Pro	Leu	Leu	Leu	Asn	Thr	Pro	Ala
			325					330						335	
Ile	Pro	Ser	Phe	Lys	Arg	Asp	Pro	Phe	Ile	Gly	Glu	His	Thr	Glu	Glu
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Ile	Leu	Glu	Glu	Phe	Gly	Phe	Ser	Arg	Glu	Glu	Ile	Tyr	Gln	Leu	Asn
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<210> 109
 <211> 1524
 <212> DNA
 <213> Homo sapien

<400> 109

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<210> 110
 <211> 3410
 <212> DNA
 <213> Homo sapien

<400> 110

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<210> 111

<211> 1289

<212> DNA

<213> Homo sapien

<400> 111

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<210> 112

<211> 315

<212> PRT

<213> Homo sapien

<400> 112

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 20          25          30
Phe Phe Leu Phe Phe Leu Gly Val Trp Leu Val Ala Tyr Gly Val Ala
 35          40          45
Thr Glu Gly Leu Leu Arg Pro Arg Asp Ser Asp Phe Pro Ser Ile Leu
 50          55          60
Arg Arg Val Phe Tyr Arg Pro Tyr Leu Gln Ile Phe Gly Gln Ile Pro
 65          70          75          80
Gln Glu Asp Met Asp Val Ala Leu Met Glu His Ser Asn Cys Ser Ser
 85          90          95
Glu Pro Gly Phe Trp Ala His Pro Pro Gly Ala Gln Ala Gly Thr Cys
100          105          110
Val Ser Gln Tyr Ala Asn Trp Leu Val Val Leu Leu Leu Val Ile Phe
115          120          125
Leu Leu Val Ala Asn Ile Leu Leu Val Asn Leu Leu Ile Ala Met Phe
130          135          140
Ser Tyr Thr Phe Gly Lys Val Gln Gly Asn Ser Asp Leu Tyr Trp Lys
145          150          155          160
Ala Gln Arg Tyr Arg Leu Ile Arg Glu Phe His Ser Arg Pro Ala Leu
165          170          175
Ala Pro Pro Phe Ile Val Ile Ser His Leu Arg Leu Leu Leu Arg Gln
180          185          190
Leu Cys Arg Arg Pro Arg Ser Pro Gln Pro Ser Ser Pro Ala Leu Glu

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195	200	205
His Phe Arg Val Tyr Leu Ser Lys Glu Ala Glu Arg Lys Leu Leu Thr		
210	215	220
Trp Glu Ser Val His Lys Glu Asn Phe Leu Leu Ala Arg Ala Arg Asp		
225	230	235
Lys Arg Glu Ser Asp Ser Glu Arg Leu Lys Arg Thr Ser Gln Lys Val		
245	250	255
Asp Leu Ala Leu Lys Gln Leu Gly His Ile Arg Glu Tyr Glu Gln Arg		
260	265	270
Leu Lys Val Leu Glu Arg Glu Val Gln Gln Cys Ser Arg Val Leu Gly		
275	280	285
Trp Val Ala Glu Ala Leu Ser Arg Ser Ala Leu Leu Pro Pro Gly Gly		
290	295	300
Pro Pro Pro Pro Asp Leu Pro Gly Ser Lys Asp		
305	310	315

<210> 113
 <211> 553
 <212> PRT
 <213> Homo sapien

<400> 113

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Ala Ala Gly Ile Thr Tyr Val Pro Pro Leu Leu Leu Glu Val Gly Val		
35	40	45
Glu Glu Lys Phe Met Thr Met Val Leu Gly Ile Gly Pro Val Leu Gly		
50	55	60
Leu Val Cys Val Pro Leu Gly Ser Ala Ser Asp His Trp Arg Gly		
65	70	75
Arg Tyr Gly Arg Arg Arg Pro Phe Ile Trp Ala Leu Ser Leu Gly Ile		
85	90	95
Leu Leu Ser Leu Phe Leu Ile Pro Arg Ala Gly Trp Leu Ala Gly Leu		
100	105	110
Leu Cys Pro Asp Pro Arg Pro Leu Glu Leu Ala Leu Leu Ile Leu Gly		
115	120	125
Val Gly Leu Leu Asp Phe Cys Gly Gln Val Cys Phe Thr Pro Leu Glu		
130	135	140
Ala Leu Leu Ser Asp Leu Phe Arg Asp Pro Asp His Cys Arg Gln Ala		
145	150	155
Tyr Ser Val Tyr Ala Phe Met Ile Ser Leu Gly Gly Cys Leu Gly Tyr		
165	170	175
Leu Leu Pro Ala Ile Asp Trp Asp Thr Ser Ala Leu Ala Pro Tyr Leu		
180	185	190
Gly Thr Gln Glu Glu Cys Leu Phe Gly Leu Leu Thr Leu Ile Phe Leu		
195	200	205
Thr Cys Val Ala Ala Thr Leu Leu Val Ala Glu Glu Ala Ala Leu Gly		
210	215	220
Pro Thr Glu Pro Ala Glu Gly Leu Ser Ala Pro Ser Leu Ser Pro His		
225	230	235
Cys Cys Pro Cys Arg Ala Arg Leu Ala Phe Arg Asn Leu Gly Ala Leu		
245	250	255
Leu Pro Arg Leu His Gln Leu Cys Cys Arg Met Pro Arg Thr Leu Arg		
260	265	270
Arg Leu Phe Val Ala Glu Leu Cys Ser Trp Met Ala Leu Met Thr Phe		
275	280	285

Thr Leu Phe Tyr Thr Asp Phe Val Gly Glu Gly Leu Tyr Gln Gly Val
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 Pro Arg Ala Glu Pro Gly Thr Glu Ala Arg Arg His Tyr Asp Glu Gly
 305 310 315 320
 Val Arg Met Gly Ser Leu Gly Leu Phe Leu Gln Cys Ala Ile Ser Leu
 325 330 335
 Val Phe Ser Leu Val Met Asp Arg Leu Val Gln Arg Phe Gly Thr Arg
 340 345 350
 Ala Val Tyr Leu Ala Ser Val Ala Ala Phe Pro Val Ala Ala Gly Ala
 355 360 365
 Thr Cys Leu Ser His Ser Val Ala Val Val Thr Ala Ser Ala Ala Leu
 370 375 380
 Thr Gly Phe Thr Phe Ser Ala Leu Gln Ile Leu Pro Tyr Thr Leu Ala
 385 390 395 400
 Ser Leu Tyr His Arg Glu Lys Gln Val Phe Leu Pro Lys Tyr Arg Gly
 405 410 415
 Asp Thr Gly Gly Ala Ser Ser Glu Asp Ser Leu Met Thr Ser Phe Leu
 420 425 430
 Pro Gly Pro Lys Pro Gly Ala Pro Phe Pro Asn Gly His Val Gly Ala
 435 440 445
 Gly Gly Ser Gly Leu Leu Pro Pro Pro Ala Leu Cys Gly Ala Ser
 450 455 460
 Ala Cys Asp Val Ser Val Arg Val Val Val Gly Glu Pro Thr Glu Ala
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 Arg Val Val Pro Gly Arg Gly Ile Cys Leu Asp Leu Ala Ile Leu Asp
 485 490 495
 Ser Ala Phe Leu Leu Ser Gln Val Ala Pro Ser Leu Phe Met Gly Ser
 500 505 510
 Ile Val Gln Leu Ser Gln Ser Val Thr Ala Tyr Met Val Ser Ala Ala
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 Lys Ser Asp Leu Ala Lys Tyr Ser Ala
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<210> 114
 <211> 241
 <212> PRT
 <213> Homo sapien

<400> 114
 Met Gln Cys Phe Ser Phe Ile Lys Thr Met Met Ile Leu Phe Asn Leu
 1 5 10 15
 Leu Ile Phe Leu Cys Gly Ala Ala Leu Leu Ala Val Gly Ile Trp Val
 20 25 30
 Ser Ile Asp Gly Ala Ser Phe Leu Lys Ile Phe Gly Pro Leu Ser Ser
 35 40 45
 Ser Ala Met Gln Phe Val Asn Val Gly Tyr Phe Leu Ile Ala Ala Gly
 50 55 60
 Val Val Val Phe Ala Leu Gly Phe Leu Gly Cys Tyr Gly Ala Lys Thr
 65 70 75 80
 Glu Ser Lys Cys Ala Leu Val Thr Phe Phe Phe Ile Leu Leu Leu Ile
 85 90 95
 Phe Ile Ala Glu Val Ala Ala Ala Val Val Ala Leu Val Tyr Thr Thr
 100 105 110
 Met Ala Glu His Phe Leu Thr Leu Leu Val Val Pro Ala Ile Lys Lys
 115 120 125
 Asp Tyr Gly Ser Gln Glu Asp Phe Thr Gln Val Trp Asn Thr Thr Met

130		135		140
Lys Gly Leu Lys Cys Cys Gly Phe Thr Asn Tyr Thr Asp Phe Glu Asp				
145		150		155
Ser Pro Tyr Phe Lys Glu Asn Ser Ala Phe Pro Pro Phe Cys Cys Asn				
	155		170	175
Asp Asn Val Thr Asn Thr Ala Asn Glu Thr Cys Thr Lys Gln Lys Ala				
	180		185	190
His Asp Gln Lys Val Glu Gly Cys Phe Asn Gln Leu Leu Tyr Asp Ile				
	195		200	205
Arg Thr Asn Ala Val Thr Val Gly Gly Val Ala Ala Gly Ile Gly Gly				
	210		215	220
Leu Glu Leu Ala Ala Met Ile Val Ser Met Tyr Leu Tyr Cys Asn Leu				
225		230		235
Gln				240

<210> 115
 <211> 366
 <212> DNA
 <213> Homo sapien

<400> 115
 gctctttctc tcccctctc tgaatttaast tctttcaact tgcaatttgc aaggattaca 60
 catttcaactg tgatgtatat tgtgttgcaa aaaaaaaaaa gtgtctttgt ctaaaattac 120
 ttgggttggtg aatccatctt gctttttccc catttggaact agtcattaac ccattctctga 180
 actggttagaa aaacatctga agagctagtc tctcagcctc tgacaggtga attggatggt 240
 tctcagaacc atttcaacca gacagcctgt ttctatcctg tttataaat tagtttgggt 300
 tctctacatg cataacaaac cctgctccaa tctgtcacat aaaagtctgt gacttgaagt 360
 ttagtc 366

<210> 116
 <211> 282
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(282)
 <223> n = A,T,C or G

<400> 116
 acaaagatga accatttcct atattatagc aaattataaa tctaccctga ttctaattatt 60
 gagaaatgag atnaaacaca atnttataaa gtctacttag agaagatcaa gtgacctcaa 120
 agactttact attttcatat tttaagacac atgatttata ctatttttagt aacctgggtc 180
 atacgttaaa caaaggataa tgtgaacagc agagaggatt tgttggcaga aaatctatgt 240
 tcaatctnga actatctana tcacagacat ttctattcct tt 282

<210> 117
 <211> 305
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(305)
 <223> n = A,T,C or G

<400> 117

```

acacatgtog ctteactgcc ttcttagatg cttctgggtca acatanagga acagggacca      60
tatttatcct ccttcctgaa acaattgcaa aataanacaa aatatatgaa acaattgcaa      120
aataaggcaa aatatatgaa acaacagggtc tcgagatatt ggaatcagc caatgaagga      180
tactgatccc tgatcactgt cctaatgcag gatgtgggaa acagatgagg tcacctctgt      240
gactgcccca gcttactgcc tgtagagagt ttctangctg cagttcagac agggagaaat      300
tggtt                                           305

```

<210> 118

<211> 71

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (71)

<223> n = A,T,C or G

<400> 118

```

accaagggtgt ntgaatctct gacgtgggga tctctgatto ccgcacaatc tgagtggaaa      60
santcctggg t                                           71

```

<210> 119

<211> 212

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (212)

<223> n = A,T,C or G

<400> 119

```

actccgggttg gtgtcagrag caggtggcat tgaacatngc aatgtggagc ccaaacccca      60
gaaaattgggg tgaattggc caactttcta tnaacttatg ttggcaantt tgccaccaac      120
agtaagctgg cctttctaataaaaagaaat tgaaaggttt ctcaactaanc ggaattaant      180
aatggantca aganactccc aggcctcagc gt                                           213

```

<210> 120

<211> 90

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (90)

<223> n = A,T,C or G

<400> 120

```

actcgttgca natcaggggc cccccagagt caccgttgca ggagtccttc tggttcttgc      60
ctccgccggc gcagaacatg ctggggtggt                                           90

```

<210> 121

<211> 218

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> {1}... (218)

<223> n = A,T,C or G

<400> 121

tgtanogtga anaogacaga nagggttgtc aaaaatggag aanccttgaa gtcattttga	60
gaataagatt tgctaaaaga ttgggggcta aaacatgggtt attgggagac atttctgaag	120
atatncangt aaattangga atgaattcat ggttctttttg ggaattcctt taogatngcc	180
agcatonact tcatgtgggg atancagcta ccccttgta	218

<210> 122

<211> 171

<212> DNA

<213> Homo sapien

<400> 122

taggggtgta tgcaactgta aggacaaaaa ttgagaactca actgggttaa ccaataaagg	60
catttggttag ctcatgggac aggaagtcgg atgggtggggc atcttcagtg ctgcatgagt	120
caccaccccg gcygggtcat ctgtgccaca ggtccctgtt gacagtgcgg t	171

<210> 123

<211> 76

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> {1}... (76)

<223> n = A,T,C or G

<400> 123

tgtagogtga agaenacaga atgggtgtgtg ctgtgtctatc caggaacaca tttattatca	60
ttatcaanta ttgtgt	76

<210> 124

<211> 131

<212> DNA

<213> Homo sapien

<400> 124

acctttcccn aaggccaatg tectgtgtgc taactggccg gctgcaggac agctgcaatt	60
caatgtgctg ggtcatatgg aggggaggag actctaaaat agccaatttt attctcttgg	120
ttaagatttg t	131

<210> 125

<211> 432

<212> DNA

<213> Homo sapien

<400> 125

actttatcta ctggctatga aatagatggc ggaaaaatgc gttaccaact ataccactgg	60
cttgaaaaag aggtgatagc tcttcagagg acttgtgact tttgtcaga tgrtgaagaa	120
ctacagtctg catttggcag aatgaagat gaatttggat taaatgagga tgctgaagat	180
ttgctcacc aaacaaaagt gaaacaaact agagaaaact ttcaggaaaa aagacagtgg	240
ctcttgaagt atcagtcact ttbgagaatg tttcttagtt actgcatact tcatggatcc	300
catgggtggg gtcttgcatc tgtaagaatg gaattgattt tgccttttga agaattctcag	360
caggaaaact cagaaccact atttcttagc cctctgtcag agcaaacctc agtgcccttc	420
ctctttgctt gt	432

<210> 126
 <211> 112
 <212> DNA
 <213> Homo sapien

<400> 126
 acacaacttg aatagtaaaa tagaaactga gctgaatttt ctaattcaact ttctaaccat 60
 agtaagaatg atatttcccc ccaggggatca ccaatatatt ataanaattt gt 112

<210> 127
 <211> 54
 <212> DNA
 <213> Homo sapien

<400> 127
 accacgaaac cacaaacaag atggaagcat caatccactt gccaaacaca gcag 54

<210> 128
 <211> 323
 <212> DNA
 <213> Homo sapien

<400> 128
 acctcattag caattgtttt gttgtttcat ttttttttaa tgtctccctt ctaccagctc 60
 acctgagata acagaatgaa aatggaagga cagccagatt tctcctttgc tctctgctca 120
 tctctctga agtctagggt acccattttg gggacccatt ataggcaata aacacagttc 180
 ccaaagcatt tggacagttt cttgtttgtt tttagaatgg ttttcctttt tcttagcctt 240
 tctctgcaaa aggetcactc agtcccttgc ttgtcagtg gactgggctc cccaggacct 300
 aggetgcctt cttttccatg tcc 323

<210> 129
 <211> 192
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(192)
 <223> n = A,T,C or G

<400> 129
 acatacatgt gtgtatattt ttaaatatca cttttgtatc accttgactt tttagcatatc 60
 tgaagacaca ctancataat ttntgtgaac cabgatcaga tacaacccaa atcattcactc 120
 tagccatttc atctgtgata naagatagg tgagtttcat ttccttcacg ttggccaatg 180
 gataaacaaa gt 192

<210> 130
 <211> 362
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(362)
 <223> n = A,T,C or G

<400> 130
 ccccttttta tggaaatgagt agactgtatg cttgaanatt tancacaaac ctctttgaca 60

```

tataatgacg caacaaaaag gtgctgttta gtccatgggt tcagtttatg cccctgacaa      120
gtttccattg tgttttgccg atcttctggc taatcgctgg atcctccatg ctattagtaa      180
ttctgtattc cattttgtta acgcctggta gatgtaacct gctangaggc taactttata      240
cttattttaa agctcttatt ttgtggtcat taaaatggca atttatgtgc agcctttat      300
tgcagcagga agcgcgtgtg ggttggttgt aaagctcttt gctaattcta aaaagtaatg      360
gg

```

<210> 131

<211> 332

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (332)

<223> n = A,T,C or G

<400> 131

```

ctttttgaaa gatcggtgac actcctgttg acatcttggc ttaattggagt ttcccatgca      60
gtangactgg tatggttgca gctgtccaga taaaaacatt tgaagagctc caaaatgaga      120
gttctccacg gttcgccctg ctgctccaag tctcagcagc agcctctttt aggaggcacc      180
ttctgaacta gattaaggca gcttgtaaat ctgatgtgat ttggtttatt atccaactaa      240
cttccatctg ttatcactgg agaaagccca gactcccan gacnggtacg gattgtgggc      300
atanaaggat tgggtgaagc tggcgttgtg gt

```

<210> 132

<211> 322

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (322)

<223> n = A,T,C or G

<400> 132

```

acttttgcca ttttgtatat ataacaatc ttgggacatt ctcccgaaaa ctagggtgter      60
agtgggtaag agaactcgat ttcaagcaat tctgaaagga aaaccagcat gacacagaat      120
ctcaaattcc caaacagggg ctctgtggga aaaatgaggg aggaaccttg tatctgggtg      180
tttagcaagt taaaatgaan atgacaggaa aggcctattt atcaacaaag agaagagttg      240
ggatgcttct aaaaaaaact ttggtagaga aaataggaat gctnaatcct aggggaagcct      300
gtaacaatct acaattgggc ca

```

<210> 133

<211> 278

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (278)

<223> n = A,T,C or G

<400> 133

```

acaagccttc acaagtttaa ctaaattggg attaatcttt ctgtanttat ctgcataatt      60
cttggttttc ttccatctg gctcctgggt tgacaatttg tggaaacaa totattgcta      120
ctatttaaaa aaatccaa atctttccct ttaagctatg ttgaattcaa actattcctg      180
ctattcctgt ttgtcaag aaattatatt ttccasata tgtntatttg ctggtgggt      240

```

ccccaggaaac actaataaaa accacagaga ccagccctg

278

<210> 134
 <211> 121
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1)...(121)
 <223> n = A,T,C or G

<400> 134
 gtttenaaaa cttgttttagc tccctagagg aaagaatgtt aaacttttcta ttttaaaaaa 60
 tgattctctg aggttaaaact tggttttcaa atgttatatt tacttgtatt ttgcttttgg 120
 t 121

<210> 135
 <211> 350
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1)...(350)
 <223> n = A,T,C or G

<400> 135
 acttanaaac atgectagca catcagaatc cctcaaaaga catcagtata atcctatacc 60
 atancaagtg gtgactgggt aagcgtgcga caaaggtcag ctggcacatt acttgctgtg 120
 aaacttgata cttttgttct aagtaggaac tagtatacag tncctaggan tggtaactca 180
 gggtgccccc caactcctgc agccgctcct ctgtgccagn ccttgnaaag aactttcget 240
 ccacctcaat caagccctgg gccatgctac ctgcaattgg ctgaacaaac gtttgctgag 300
 tccccaggga tgcaagcct ggtgctcaac tcttggggcg tcaactcagt 350

<210> 136
 <211> 399
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1)...(399)
 <223> n = A,T,C or G

<400> 136
 tgtaccgtga agacgacaga agttgcatgg cagggacagg gcagggccga ggcaggggtt 60
 gctgtgattg tatcogaata ntccctgtga gaaaagataa tgagatgacg tgagcagcct 120
 gcagacttgt gtctgccttc aanaagccag acaggaaggc cctgcctgcc ttggctctga 180
 cctgggggoc agccagccag ccacaggttg gcttcttctt tttgtggtga caacnccaag 240
 aaaactgcag aggccaggg tcaggtgtga gtgggtangt gaccataaaa carcaggtgc 300
 tcccaggaaac cggggcaaa ggcattccca cctacagcca gcatgcccac tggcgtgatg 360
 ggtgcagang gatgaagcag ccagntgttc tgcgttgtt 399

<210> 137
 <211> 165
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(165)
 <223> n = A,T,C or G

<400> 137
 actggtgttg tnggggggtga tgcgtggtggt anaagttgan gtgacttcan gatggtgtgt 60
 ggagggaagtg tgtgaaogta gggatgtaga ngttttggcc gtgctaaatg agcttcggga 120
 ttggctgggc ccactggggtg tcactgtcat tgggtggggtt cctgt 165

<210> 138
 <211> 338
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(338)
 <223> n = A,T,C or G

<400> 138
 actcactgga atgccacatt cacaacagaa tcagaggctct gtgaaacat taatggctcc 60
 ttaacttctc cagtaagaat cagggaacttg aaatggaaac gttacagcc acatgcccac 120
 tgetgggcag tctcccatgc ctccacagt gaaagggttt gagaaaaatc acatccaatg 180
 tcatgtgttt ccagccacac caaaagggtgc ttgggggtgga gggctggggg catananggt 240
 cangcctcag gaagcctcaa gttccattca gctttgccac tgtacattcc ccatttttaa 300
 aaaaactgat gccctttttt ttttttttg taasattc 338

<210> 139
 <211> 382
 <212> DNA
 <213> Homo sapien

<400> 139
 gggaatcttg gtttttggca tctggtttgc ctatagccga ggccactctg acagaacaaa 60
 gaaagggact toagtaaga aggtgattta cagccagcct agtgcccgaa gtgaaggaga 120
 attcaaacag acctcgctcat tcttggtgtg agcctggctg gctcaccgcc tatcatctgc 180
 atttgcctta ctcaggtgct accggactct ggcctctgat gtctgtagtt tcacaggatg 240
 ccttatttgt cttctacaac ccacagggcc ccctactctc tcggatgtgt ttttaataat 300
 gtcagctatg tgcctccatcc tccttcattgc cctccctccc ttctctacca ctgctgagtg 360
 gcctggaaat tgtttaaagt gt 382

<210> 140
 <211> 200
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(200)
 <223> n = A,T,C or G

<400> 140
 accaaanctt cttctgtttg tgttngattt tactataggg gtttngcttn ttctasanat 60
 acttttctt taacancttt tgttaagtgt caggtgcac ttgtctccat anaattattg 120
 ttttcacatt tcaacttgta tgtgtttgtc tottanagca ttggtgaaat cacatacttt 180
 atattcagca taaggagaa 200

<210> 141
 <211> 335
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1)...(335)
 <223> n = A,T,C or G

<400> 141
 accttatttt caaacactc atatgttgca aaaaacacat agaaaaataa agtttggtgg 60
 ggggtgtgac taaacttcaa gtcacagact tttatgtgac agattggagc agggtttgtt 120
 atgcatgtag agaaccocaa ctaatttcatt aacaggata gaaacaggct gtctgggtga 180
 aatggttctg agaaccatcc aattcacttg tcagatgctg atanactagc tcttcagatg 240
 tttttctacc agttcagaga tnggttaatg actanttcca atggggaaaa agcaagatgg 300
 attcacaac caagtaattt taaacaaga cactt 335

<210> 142
 <211> 459
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1)...(459)
 <223> n = A,T,C or G

<400> 142
 accaggttta tattgccaca tatatccttt ccaattgcgg gctaaacaga cgtgtattta 60
 gggttgttta aagacaacco agcttaatat caagagaaat tgbacottt catggagtat 120
 ctgatggaga aaacactgag ttttgacaaa tottatttta ttacagatagc agtctgatca 180
 cacatggttc aacaacactc aaataataaa tcaaatatne tcagatgtta aagattggtc 240
 ttcaaacatc atagccaatg atgccccgct tgccatataat ctctccgaca taaaaccaca 300
 tcaacacctc agtggccacc aaaccattca gcacagcttc cttaactgtg agctgtttga 360
 agctaccagt ctgagcacta ttgaactatnt ttttcangct ctgaantagct ctagggatct 420
 cagcangggg gggagggaacc agctcaacct tggcgtant 459

<210> 143
 <211> 140
 <212> DNA
 <213> Homo sapien

<400> 143
 acatttctct ccaccaagtc aggactcctg gcttctgtgg gaggttcttat cacttgaggg 60
 aatcccaac agtctctctt agaaaggaat agtgtacca acccaccca tctccttgag 120
 accatccgac ttcctgtgt 140

<210> 144
 <211> 164
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(164)
 <223> n = A,T,C or G

<400> 144

acttcagtaa	caacatacaa	taacaacatt	aagtgatat	tgccatcttt	gtcattttct	60
atctatacca	ctctcccttc	tgaaaaacaan	aatcactanc	caatcactta	tacaaatttg	120
aggcaattaa	tccatatttg	ttttcaataa	ggaaaaaaag	atgt		164

<210> 145

<211> 303

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(303)

<223> n = A,T,C or G

<400> 145

acgtagacca	tccaactttg	tatttgtaat	ggcaaacatc	cagnagcaat	tccataaaca	60
actggagggt	atttataccc	aattatccca	ttcattaaca	tgccctcttc	ctcaggctat	120
gcaggacagg	tatcataagt	cggcccaggc	atcragatac	taccatttgt	ataaacttca	180
gtagggggagt	ccatccaagt	gacaggtcta	atcaaaggag	gaaatgggac	ataagcccag	240
tagtaaaatn	tbgcttagct	gaaacagcca	caaaagactt	accgccgtgg	tgattaccat	300
caa						303

<210> 146

<211> 327

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(327)

<223> n = A,T,C or G

<400> 146

actgcagctc	aattagaagt	ggtctctgac	tttcatcanc	ttctccctgg	gtcccatgac	60
actggccttg	agtgaactcat	tgtctctggt	gggtgagaga	gtctctttgc	caacaggcct	120
ccaagtcagg	gctgggattt	gtttcctttc	cacattctag	caacastatg	ctggccactt	180
cctgaacagg	gggggtggga	ggagccagca	tggaaacaagc	tgccactttc	taaagtagcc	240
agaacttgccc	ctgggcttgt	cacacctact	gatgaccttc	tgtgcttga	ggatgggaatg	300
taggggtgag	ctgtgtgact	ctatcgtt				327

<210> 147

<211> 173

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(173)

<223> n = A,T,C or G

<400> 147

acattgtttt	tttgagataa	agcaattgana	gagctctctt	taacgtgaca	caatgggaagg	60
actggaaacac	ataccacat	ctttgttctg	agggataaatt	ttctgatasa	gtcttgctgt	120
atattcaago	acataigtta	tatattatct	agttccatgt	ttatagccta	gtt	173

<210> 148

<211> 477
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> [1]... (477)
 <223> n = A,T,C or G

<400> 149
 acaaccactt tatctcatcg aattttttaac ccaaactcac tcaactgtgc tttctatcct 60
 atgggatata ttatttgatg ctccatttca tcacacatat atgaataata cactcatact 120
 gccctactac ctgctgcaat aatcacatto cettctctgtc ctgacctga agccattggg 180
 gtggctctag tggccatcag tccangcctg cactcttgagc ccttgagctc cattgctcac 240
 nccanccca ctoaccgccc ccctcctctt acacagctac ctctctgctc tctaacccca 300
 tagattatnt ccaaattcag tcaattaagt tactattaac actctarccg acatgtccag 360
 caccactggt aagccttctc cagccaacac acacacacac acacacacac acacacatat 420
 ccaggcacag gctacctcat ctccacaatc acccctttaa ttaccatgct atggtgg 477

<210> 149
 <211> 207
 <212> DNA
 <213> Homo sapien

<400> 149
 acagttgtat tataatatac agaaataaac ttgcaatgag agcatttaag agggangaac 60
 taacgtatnt tagagagcca aggaagggtt ctgtggggag tgggatgtaa ggtggggcct 120
 gatgatcaat aagagtcagc caggttaagt ggtgggtgtg tatgggcaca gtgaagaaca 180
 tttcaggcag agggaaacagc agtgaaa 207

<210> 150
 <211> 111
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> [1]... (111)
 <223> n = A,T,C or G

<400> 150
 accttgattt cattgctgct ctgatggaaa cccaactatc taatttagct aaaacatggg 60
 cacttaaatg tggtcagtgt ctggacttgt taactantgg catctttggg c 111

<210> 151
 <211> 196
 <212> DNA
 <213> Homo sapien

<400> 151
 agcgggcag gtcatttga acattccaga tactctatcat tactcgatgc tgttgataac 60
 agcaagatgg ctctgaactc aggtcacc ccaactattg gaccttacta tgaaaaccat 120
 ggataccaac cggaaaaacc ctatccgca cagcccaactg tggtecccaac tgtctacgag 180
 gtgcattcgg ctcatg 196

<210> 152
 <211> 132
 <212> DNA

<213> Homo sapien

<400> 152

acagcacttt cacatgtaag aaggagagaaa ttactaaatg taggagaaag ataacagAAC	60
cttcccccttt tcatctagtg gtggaaacct gatgctctat gttgacagga atagaaccag	120
gagggagttt gt	132

<210> 153

<211> 385

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> {1}...{205}

<223> n = A,T,C or G

<400> 153

acaanaccca nganaggcca ctggccgtgg tgtcatggcc tccaaacatg aaagtgtcag	60
cttctgtctct tatgtctctca tctgacaact ctttaccatt tttatctctg ctgagcagga	120
gcacatcaat aaagtccaaa gtcttggact tggccttggc ttggagggaag tcatcaaacac	180
cctggctagt gaggggtgagg cgcgctcct ggatgaaggc atctgtgaag togtgcacca	240
gtctgcaggc cctgtggaag cgcgctccac aaggagtnag gaatt	285

<210> 154

<211> 333

<212> DNA

<213> Homo sapien

<400> 154

accacagtcc tgttggggcca gggcttcatg accctttctg tgaanagcca tattatcacc	60
accccaaatt ttctcttaaa tatctttaac tgaaggggtc agcctcttga ctgcaaagac	120
cctaagcagg ttacacagct aactccact ggccctgatt tgtgaaattg ctgctgcctg	180
attggcacag gaggctgaagg tgttcagctc cctctctcgg tggaaaggga ctctgatttg	240
agtttcacaa attctcgggc cactctgtca ttgctctctt gaaatasaat ccggagagatg	300
gtcaggcctg tctcatccat atggatcttc ogg	333

<210> 155

<211> 308

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> {1}...{308}

<223> n = A,T,C or G

<400> 155

actggaaata ataaaaccca catcacagtg ttgtgtcaaa gatcatcagg gcatggatgg	60
gaaagtgtct tgggaactgt aaagtgccta acacatgac gatgattttt gttataatat	120
ttgaatcacg gtgcatacaa actctcctgc ctgctctctc tgggccccag cccagcccc	180
atcacagctc actgctctgt tcatccaggc ccagcatgta gtggctgatt cttcttggct	240
gcttttagcc tccanaagtt tctctgaagc caaccacacc tctangtga aggcattgctg	300
gccttggg	308

<210> 156

<211> 295

<212> DNA

<213> Homo sapien

<400> 156

acettgctcg	gtgcttggaa	catattagga	actcaaaata	tgagatgata	acagtgccta	60
ttattgatta	ctgagagaac	tgtagacat	ctagttgaag	atcttctaca	caggaaactga	120
gaataggaga	ttatgtttgg	cctcatatt	ctctctatc	ctccttgcct	cattctatgt	180
ctaataatatt	ctcaatcaaa	taaggttagc	ataatcagga	aategacca	ataccaatat	240
aaaaccagat	gtctatcctt	aagattttca	aatagaaaa	aaattaacag	actat	295

<210> 157

<211> 126

<212> DNA

<213> Homo sapien

<400> 157

acaagtttaa	atagtgtgt	cactgtgcct	gtgctgaat	gtgaaatcca	ccacatttct	60
gaagagcaaa	acaaattctg	tcagtgaatc	tctatcttgg	gtcgtgggta	tatctgtccc	120
cttagt						126

<210> 158

<211> 442

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> {1}... (442)

<223> n = A,T,C or G

<400> 158

acccactggt	cttggaacaa	cccatcctta	atacgatgat	tttctctgctg	tgtgaaaatg	60
aanccrager	gtgcccccta	gtcagtcctt	ccttccagag	aaaaagagat	ttgagaaagt	120
gcctgggttaa	ttcacccatta	atttctctcc	ccaaactctc	tgagtcttcc	cttaatatct	180
ctgggtggttc	tgaccaaaagc	aggtcatggt	ttgttgagca	tttgggatcc	cagtgaagta	240
natgtttgta	gccttgcata	cttagccctt	cccacgcaca	aacggagtgg	cagagtggctg	300
ccaaccctgt	ttctccagtc	cargtagaca	gattcacagt	gcgggaattct	ggaagctgga	360
nacagacggg	ctctttgcag	agccgggact	ctgagangga	catgagggcc	tctgcctctg	420
tgttcattct	ctgatgtcct	gt				442

<210> 159

<211> 498

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> {1}... (498)

<223> n = A,T,C or G

<400> 159

acttccagggt	aacgttggtg	tttccgttga	gcctgaactg	atgggtgacg	ctgtagggttc	60
tccaacaaga	actgagggtg	cagagcgggt	agggaaagagt	gctgttccag	ttgcacctgg	120
gctgctgtgg	actgttggtg	attcctcaact	acggcccaag	gttgtggaac	tggcanaaag	180
gtgtgttgtt	gganttgagc	tgggggggct	gtggtaggtt	gtgggtctct	caacaggggc	240
tgctgtggtg	ccgggagtg	aangtgttgt	gtcacttgag	cttggccagc	tctggaaagt	300
antatattct	ttctgaaggc	cagcgtttgt	ggagctggca	ngggtrantg	ttgtgtgtaa	360
cgaaccagtg	ctgctgtggg	tgggtgtana	tcctccacaa	agcctgaagt	tatgggtgcn	420
tcaggtaana	atgtgttttc	agtgctccctg	ggcngctgtg	gaaggttgta	nattgtccac	480

aagggaataa gctgtggt

498

<210> 160

<211> 380

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> [1]...[380]

<223> n = A,T,C or G

<400> 160

aactgcacac	agcttcacctg	ccaaactcac	aaggagacac	caacctctag	acagggaaac	60
agcttcagga	tacttcagg	agacagagcc	accagcagca	aaacaaatat	tcccatgcct	120
ggagcatggc	atagagggaag	ctganaaaatg	tggggtctga	ggaagccatt	tgagtctggc	180
cactagacac	ctcatcagcc	acttggtgtga	agagatgccc	catgaccccc	gatgcctctc	240
ccacccttac	ctccctctca	cacacttgag	ctttccactc	tgtataattc	caacatcttg	300
gagaaaaatg	gcagtttgac	cgaacctgtc	cacaacggta	gaggctgatt	tctaacgaaa	360
cttgtagaat	gaagcctgga					380

<210> 161

<211> 114

<212> DNA

<213> Homo sapien

<400> 161

actccacac	ccctctgagc	aggcggttgt	cgttcaagggt	gtattctggc	ttgcctgtca	60
cactgtccac	tggccctta	tcacttgggt	gcttaatccc	tcaagagagc	atgt	114

<210> 162

<211> 177

<212> DNA

<213> Homo sapien

<400> 162

actttctgaa	togaatcaaa	tgatacttag	tgtagtttta	atatcctcat	atatatcaaa	60
gttttactac	tctgataatt	ttgtaaacca	ggtaaccaga	acatccagtc	atacagcttt	120
tggtagata	taacttggca	ataaccagtc	ctggtgatac	ataaaactac	tcactgt	177

<210> 163

<211> 137

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(137)

<223> n = A,T,C or G

<400> 163

catttatara	gacaggcgtg	aagacattca	cgacaaaaac	gcaaatctct	atcccgtgac	60
canagaaggg	agctaaggct	actoctacat	cctggcgctgg	gtggccttcg	cctgcacctt	120
catcagcggc	atgatgt					137

<210> 164

<211> 469

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(469)

<223> n = A,T,C or G

<400> 164

cttatcacaa	tgaatgttct	cctggggcagc	gttgtgatct	ttgccacctt	cgtgacttta	60
tgcaatgcct	catgctattt	catacctaast	gagggagttc	caggagattc	aaccaggaaa	120
tgcctggatc	tcaaggaaa	caaacaccca	ataaactcgg	agtggcagac	tgacaactgt	180
gagacatgca	cttgctacga	aacagaaatt	tcctgttgca	cccttgtttc	tacacotgtg	240
ggttatgaca	aagacaactg	caaagaatc	ttcaagaagg	aggactgcaa	gtatatcgtg	300
gtggagaaga	aggacccaaa	aaagacctgt	ttgttcagtg	aatggataat	ctaattgtgt	360
tctagttagc	acagggtctc	caggccaggc	ctcattctcc	tctggcctct	aatagtcaat	420
gattgtgtag	ccatgcctat	cagtaaaaag	atnttctgagc	aaacacttt		469

<210> 165

<211> 195

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(195)

<223> n = A,T,C or G

<400> 165

acagtttttt	atanatctcg	acattgcggg	cacttgtgtt	cagtttcata	aagctgggtgg	60
atccgctgtc	atccactatt	ccttggetag	agtaaaaatt	attcttatag	cccatgtccc	120
tgcaggccgc	ccgcccgtag	ttctcgttcc	agtctgtctg	gcacacaggg	tgccaggact	180
tcctctgaga	tgagt					195

<210> 166

<211> 383

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(383)

<223> n = A,T,C or G

<400> 166

acatcttagt	agtgtggcac	atcagggggc	cctcaggggc	acagtcactc	atagcctcgc	60
cgaggtcggg	gtccacacca	ccggtgtagg	tgtgtctcaat	cttgggcttg	gcgccacact	120
ttggagaagg	gatatgctgc	acacacatgt	ccacaaagcc	tgtgaactcg	ccaaagaatt	180
tttgcagacc	agcctgagca	aggggcggat	gttcagcttc	agctcctcct	tcgtcaggtg	240
gatgccacc	tcgtctangg	tccttgggaa	gctgggtgtc	acntcaccta	caacctgggc	300
gangatctta	taaagaggct	ccnagataaa	ctccacgaaa	cttctctggg	agctgctagt	360
nggggccttt	ttgggtgaact	ttc				383

<210> 167

<211> 247

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature
 <222> {1}... (247)
 <223> n = A,T,C or G

<400> 167
 acagagccag accttggcca taaatgaanc agagattaag actaaacccc aagtcganat 60
 tggagcagaa actggagcaa gaagtgggcc tggggctgaa gtagagacca aggccactgc 120
 tatanccata cacagagcca actctcaggc caaggcnatg gtctggggcag anccagagac 180
 tcaatctgan tccaaagtgg tggctgggaa actggtcatg acanaggcag tgactctgac 240
 tgangtc 247

<210> 169
 <211> 273
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> {1}... (273)
 <223> n = A,T,C or G

<400> 168
 acttctaaagc tttctagaag tgggaaggatt gtatkcaccc tgaatatggg tttaactcaa 60
 aatccctcan ccttggtctt cactactgtc tatactgana gtgtcatgtt tccacaaagg 120
 gctgacacct gagcctgnat tttaactcat ccttgagaag ccttttcag tagggctgggc 180
 aattcccaac ttcttgcca caagcttccc aggtcttctc ccttgaaaa ctccagcttg 240
 agtccacgat acactcatgg gctgcccctgg gca 273

<210> 169
 <211> 431
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> {1}... (431)
 <223> n = A,T,C or G

<400> 169
 acagccttgg ctccccaaa ctccacagtc tcagtgcaga aagatcatct tccagcagtc 60
 agctcagacc agggctcaag gatgtgacat caacagtttc tggtttcaga acagggtcta 120
 ctactgtcaa atgaccccgc atacttcctc aaaggctgtg gtaagttttg cacagggtgag 180
 ggcagcagaa aggggggtant tactgatgga caccatcttc tctgtatact ccacactgac 240
 cttgccatgg gcaaaaggccc ctaccacaaa aacaatagga tcaactgctgg gcaccagctc 300
 acgcacatca ctgacaaccg ggatggaaaa agaantgcca actttcatac atccaactgg 360
 aaagtgatct gatactggat tcttaattac ctccaaaagc ttctgggggc catragctgc 420
 tgaacactg a 431

<210> 170
 <211> 266
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> {1}... (266)
 <223> n = A,T,C or G


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<400> 170
aactgtgggc tgggcgttta tgctgtgccc ggctgttgaa agggagttca gaggtggagc      60
tcaaggagct ctgcaggcat ttgcacaanc ctctccanag canagggagc aacctacact      120
ccccgctaga aagacaccag attggaggtcc tgggaggggg agttgggggtg ggcatttgat      180
gtatacttgt cactgaatg aangagccag agaggaanga gacgaanatg anattggcct      240
tcaaagctag ggggtctggca ggtgga      265

```

<210> 171

<211> 1248

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(1248)

<223> n = A,T,C or G

```

<400> 171
ggcagccaaa tcaataaaccg cagggactgc agcccgcaact cgcagccctg gcaggcggca      60
ctggtcatgg aaaacgaatt gtctgtctcg ggctcctggg tgcacccgca gtgggtgctg      120
tcagccgcac actgtttcca gaagtgaagt cagagctcct acaccatcgg gctgggctg      180
cacagtcttg aggcggacca agagccaggg agccagatgg tggagggccag cctctccgta      240
cggcaccacg agtacaacag acccttgctc gctaaccgac tcatgctcat caagttggac      300
gaatccgtgt ccaggtctga caccatccgg agcatcagca ttgcttcgca gtgcccacc      360
gccccgaact cttgcctcgt ttctggctgg ggtctgctgg cgaacggcag aatgcctacc      420
gtgctgcagt gcgtgaacgt gtccgtggtg tctgaggagg tctgcagtaa gctctatgac      480
ccgtgtgacc accccagcat gttctgcgcc ggccgagggc aagaccagaa ggactcctgc      540
aacggtgact ctgggggggc cctgatctgc aaogggtaact tgcagggcct tgtgtcttcc      600
ggaaaaggccc cgtgtggcca agttggcgtg ccaggtgtct acaccaacct ctgcaaatcc      660
actgagtggg tagagaaaac cgtccagggc agttaactct ggggactggg aaccatgaa      720
attgaccccc aaatacatcc tgcggaagga attcaggaat atctgttccc agccctcctc      780
ccctcaggcc caggagttcc ggccccagc cctcctccc tcaaaccaag ggtacagatc      840
cccagccctc cctccctcag acccaggagt ccagaccccc cagccctcc tccctcagac      900
ccaggagtcc agccctcct cctcagacc caggagtcca gaccccccag cccctcctcc      960
ctcagaccca ggggtccagg cccccaaccc ctcctccctc agactcagag gtccaaagcc      1020
ccaacccctc attccccaga cccagaggtc caggteccag cccctentcc ctcagaccca      1080
ggggtccaat gccacctaga ctntccctgt acacagtgcc ccttgtggc acgttgaccc      1140
aaccttacca gttgggtttt catttttngt ccttttcccc tagatccaga aataaagttt      1200
aagagaagng caaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa      1248

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<210> 172

<211> 159

<212> PRT

<213> Homo sapien

<220>

<221> VARIANT

<222> (1)...(159)

<223> Xaa = Any Amino Acid

```

<400> 172
Met Val Glu Ala Ser Leu Ser Val Arg His Pro Glu Tyr Asn Arg Pro
1          5          10          15
Leu Leu Ala Asn Asp Leu Met Leu Ile Lys Leu Asp Glu Ser Val Ser
20          25          30
Glu Ser Asp Thr Ile Arg Ser Ile Ser Ile Ala Ser Gln Cys Pro Thr
35          40          45
Ala Gly Asn Ser Cys Leu Val Ser Gly Trp Gly Leu Leu Ala Asn Gly

```

50	55	60
Arg Met Pro Thr Val Leu Gln Cys Val Asn Val Ser Val Val Ser Glu		
65	70	75
Glu Val Cys Ser Lys Leu Tyr Asp Pro Leu Tyr His Pro Ser Met Phe		80
	85	90
Cys Ala Gly Gly Gly Gln Xaa Gln Xaa Asp Ser Cys Asn Gly Asp Ser		95
	100	105
Gly Gly Pro Leu Ile Cys Asn Gly Tyr Leu Gln Gly Leu Val Ser Phe		110
	115	120
Gly Lys Ala Pro Cys Gly Gln Val Gly Val Pro Gly Val Tyr Thr Asn		125
	130	135
Leu Cys Lys Phe Thr Glu Trp Ile Glu Lys Thr Val Gln Ala Ser		140
145	150	155

<210> 173
 <211> 1265
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (1265)
 <223> n = A,T,C or G

<400> 173

ggcagccgcg	actgcagcc	ctggcagggc	gcactgggtca	tggaaaaaga	attgttctgc	60
tggggcgccc	tgggtgcaccc	gcagtgggtg	ctgtcagccg	cacactgttt	ccagaactcc	120
tacaccatcg	ggctgggccc	gcacagtctt	gaggccgacc	aagagcccgg	gagccagatg	180
gtggaggcca	gcctctccgt	acggcaccca	gagtacaaca	gaccccttgc	cgctaaccgac	240
ctcatgctca	tcaagtttga	cgaatccgtg	tcogagtctg	acaccatccg	gagcatcagc	300
attgcttgcg	agtgccttac	cgccggggaa	tcttgccctg	tttctggctg	gggtctgctg	360
gcgaacgggt	agctcacggg	tgtgtgtctg	ccctcttcaa	ggaggtcctc	tgcccagtcg	420
cgggggctga	cccagagctc	tgcgtcccag	gcagaatgcc	taccgtgctg	cagtgcgtga	480
acgtgtcggt	ggtgtctgag	gaggtctgca	gtaagctcta	tgaccgctg	taccaaccca	540
gcattgttctg	cgccggcgga	gggcaagacc	agaaggactc	ctgcaacggg	gactctgggg	600
ggccctctgat	ctgcaacggg	taattgcagg	gccttctgtc	tttcggaaaa	gcccgcgtgtg	660
gccaagtttg	ogtgcacaggt	gtctacaccca	acctctgcaa	attcactgag	tggatagaga	720
aaacogtcca	ggccagttaa	ctctggggag	tgggaaccca	tgaattgac	ccccaaatac	780
atctgcgga	aggaattcag	gaatatctgt	tcccagcccc	tcctccctca	ggcccaggag	840
tccaggcccc	cagccctccc	tccctcaaac	caagggtaca	gatcccrage	ccctcctccc	900
tcagacccag	gagtccagac	ccccagcccc	ctcctccctc	agacccagga	gtccagcccc	960
tcctccntca	gacccaggag	tccagacccc	ccagccctcc	ctcctccaga	cccagggggt	1020
gaggccccca	acccctcctc	cttcagagtc	agagggtccaa	gcccccaacc	cctcgttccc	1080
cagacccaga	ggttnnaggtc	ccagccctcc	tccctccaga	cccagnggtc	caatgccacc	1140
tagattttcc	ctgnacacag	tgcctccctg	tggngangttg	acccaacctt	accagttggt	1200
ttttcatttt	tngtcccttt	cccttagatc	cagaaataaa	gtttaagaga	ngngcaaaaa	1260
aaaaa						1265

<210> 174
 <211> 1459
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (1459)
 <223> n = A,T,C or G

<400> 174

ggtcagccgc	acactgtttc	cagaagttag	tgcagagctc	ctaraccatc	gggetgggac	80
tgcacagtct	tgaggccgac	caagagccag	ggagccagat	ggtggaggcc	agcctctccg	120
taaggcaacc	agagtacaac	agacccctgc	tgcctaaccg	cctcatgctc	atcaagttgg	180
acgaatccgt	gtccgagtct	gacaccatcc	ggagcatcag	cattgcttcg	cagtgcacct	240
ccgcggggaa	ctcttgccct	gtttctggct	ggggtctgct	ggcgaacggg	gagctcaccg	300
gtgtgtgtct	gacctcttca	aggaggtccct	ctgcccagtc	gcgggggctg	accagagacc	360
ctgcgtccca	ggcagaatgc	ctaccgtgct	gcagtgcgtg	aacgtgtcgg	tggtgtctga	420
ngaggtctgc	antaagctct	atgaccogct	gtaccacccc	ancatgttct	gcgcggcgcg	480
agggcaagac	cagaaggact	cctgcaacgt	gagagagggg	aaaggggagg	gcaggcgact	540
cagggaaggg	tggaggaggg	ggagacagag	acacacaggg	ccgcctggcg	agatgcagag	600
atggagagag	acacagggag	acagtgcaca	ctagagagag	aaactgagag	aaacagagaa	660
ataaacacag	gaataaagag	aagcaaaagg	agagagaaac	agaaacagac	atggggaggc	720
agaaacacac	acacatagaa	atgcagttga	cottccaaca	gcattggggc	tgagggcggg	780
gacctccacc	caatagaaaa	tctctttata	acttttgact	ccccaaaaac	ctgactagaa	840
atagcctact	gttgcagggg	agccttaccg	ataacataaa	tagtcgattt	atgcatacgt	900
tctatgcatt	catgatatac	ctttgttggg	attttttgat	atttctaagc	tacacagttc	960
gtctgtgaat	tttttttaaa	tgttgcaact	ctcctaaaaa	ttttctgatg	tgtttattga	1020
aaaaatccaa	gtataagbtg	acttgtgcat	tcaaaaccagg	gttgttcaag	ggtcaactgt	1080
gtacccagag	ggnaacagtg	acacagattc	atagaggtga	aacacggaag	gaaacaggaa	1140
aatcaagac	tctacaaaga	ggctgggcag	ggctggctcat	gcctgtaatc	ccagcacttt	1200
gggagggcag	gcaggcgagat	cacttgaggt	aaggagtcca	agaccagcct	ggccaaaatg	1260
gtgaaatcct	gtctgtacta	aaaatacaaa	agttagctgg	atatgggtgg	aggcgccctg	1320
aatcccagct	acttggggag	ctgaggccgg	agaattgctt	gaatatggga	ggcagaggtt	1380
gaagtgaagt	gagatcacac	cactatactc	cagctggggc	aacagagtaa	gactctgtct	1440
caaaaaaaaa	aaaaaaaaaa					1459

<210> 175

<211> 1167

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(1167)

<223> n = A, T, C or G

<400> 175

ggcagccct	ggcagggcgg	actggctcatg	gaaaaagaa	tgttctgctc	gggcgtccctg	80
gtgcacccgc	agtggggtgct	gtcagccgca	cactgtttcc	agaactccta	caacctcggg	120
ctgggcccgc	acagtcttga	ggccgaccaa	gagccagggg	gccagatggt	ggaggccagc	180
ctctccgtac	ggcaccacga	gtacaacaga	ctcttgcctg	ctaaccagct	catgtctcatc	240
aagttggacg	aatccgtgtc	caggtctgac	accatccggg	gcatacagcat	tgccttcgcag	300
tgccttaccg	cggggaaactc	ttgcctcgtn	cttggctggg	gtctgctggc	gaacggcaga	360
atgcctaccg	tgctgcactg	cgtgaacgtg	tgggtgggtg	ctgaggangt	ctgcagtaag	420
ctctatgacc	cgtgtacca	ccccagcatg	ttctgcggcg	gcggaggggc	agaccagaag	480
gactcctgca	acgggtgaactc	tggggggccc	ctgatctgca	acgggtactt	gcagggcctt	540
gtgcttttgc	gaaaaagccc	gtgtggccaa	cttggcgtgc	cagggtgtct	caaccaactc	600
tgcaaatcca	ctgagtggtg	agagaaaaac	gtccagncca	gttaactctg	gggactggga	660
acccratgaa	ttgaccccca	aatacatcct	gcgggaangaa	ttcagggaata	tctgttccca	720
gcccctcctc	cctcaggccc	aggagtccag	gccccccagc	cctcctccct	caaacccagg	780
gtacagatcc	ccagcccctc	ctccctcaga	cccaggagtc	cagaccccc	agcccctcnt	840
ccntcagacc	caggagtcca	gcccctcctc	cttcagagcg	aggagtccag	acccccccagc	900
ccntcctccg	tcagaccccag	gggtgcaggc	ccccaaaccc	tcttcctcca	gagtcagagg	960
tcraagcccc	caacccctcg	ttccccagac	ccagaggtnc	aggtcccagc	ccctcctccc	1020
tcagaccag	oggtccaatg	ccacctagan	tntccctgta	cacagtgcgc	ccttgtggca	1080
ngttgaccca	accttaccag	ttgggttttc	attttttgtc	cctttccctt	agatccagaa	1140
ataaagtnta	agagaagcgc	aaaaaaa				1167

<210> 176
 <211> 205
 <212> PRT
 <213> Homo sapien

<220>
 <221> VARIANT
 <222> (1)...(205)
 <223> Xaa = Any Amino Acid

<400> 176
 Met Glu Asn Glu Leu Phe Cys Ser Gly Val Leu Val His Pro Gln Trp
 1 5 10 15
 Val Leu Ser Ala Ala His Cys Phe Gln Asn Ser Tyr Thr Ile Gly Leu
 20 25 30
 Gly Leu His Ser Leu Glu Ala Asp Gln Glu Pro Gly Ser Gln Met Val
 35 40 45
 Glu Ala Ser Leu Ser Val Arg His Pro Glu Tyr Asn Arg Leu Leu Leu
 50 55 60
 Ala Asn Asp Leu Met Leu Ile Lys Leu Asp Glu Ser Val Ser Glu Ser
 65 70 75 80
 Asp Thr Ile Arg Ser Ile Ser Ile Ala Ser Gln Cys Pro Thr Ala Gly
 85 90 95
 Asn Ser Cys Leu Val Ser Gly Trp Gly Leu Leu Ala Asn Gly Arg Met
 100 105 110
 Pro Thr Val Leu His Cys Val Asn Val Ser Val Val Ser Glu Xaa Val
 115 120 125
 Cys Ser Lys Leu Tyr Asp Pro Leu Tyr His Pro Ser Met Phe Cys Ala
 130 135 140
 Gly Gly Gly Gln Asp Gln Lys Asp Ser Cys Asn Gly Asp Ser Gly Gly
 145 150 155 160
 Pro Leu Ile Cys Asn Gly Tyr Leu Gln Gly Leu Val Ser Phe Gly Lys
 165 170 175
 Ala Pro Cys Gly Gln Leu Gly Val Pro Gly Val Tyr Thr Asn Leu Cys
 180 185 190
 Lys Phe Thr Glu Trp Ile Glu Lys Thr Val Gln Xaa Ser
 195 200 205

<210> 177
 <211> 1119
 <212> DNA
 <213> Homo sapien

<400> 177
 gggcactcgc agccctggca gggggcactg gtcattggaaa acgaattgtt ctgctcgggc 60
 gtccctgggtgc atccgcagtg ggtgctgtca gccgcacact gtttccagaa ctccacacc 120
 atcgggctgg gcttgacag tcttgaggcc garcaagagc cagggagcca gatgggtggag 180
 gccagcctct cgtacggca cccagagtac aacagaccct tgcctcgtta cgarctcatg 240
 ctcatcaagt tggacgaatc cgtgtccgag tctgacacca tccggagcat cagcattgct 300
 tcgcagtgc ctaccgggg gaactcttgc ctgtttctg gctggggctc gctggcgaa 360
 gatgctgtga ttgccatcca gtcccagact gtgggaggct gggagtgtga gaagcttctc 420
 caacctgggc agggttgtac catttcggca acttccagtg caaggacgtc ctgctgcac 480
 ctccatgggt gctcactact gctcactgca tcccccggaa cactgtgtgc aactagccag 540
 caccatagtt ctccgaagtc agactatcat gattactgtg ctgactgtgc tgtctattgt 600
 actaaccatg ccgatgttta ggtgaaatta gcgtcacttg gccccaacca tcttggtatc 660
 cagttatcct cactgaattg agatttccctg ctccagtgtc agccattccc acataatttc 720
 tgacctacag aggtgaggga tcatatagct ctccaaggat gctgggtactc cctccacaaa 780

```

ttcatttctc ctgttgtagt gaaagggtgc cctctctggag cctcccaggg tgggtgtgca      840
ggtcacaatg atgaatgtat gatcgtgttc ccattaccca aagcctttta atccctcatg      900
ctcagttacac cagggcaggt ctagcatttc ttcatttagt gtatgctgtc cattcatgca      960
accacctcag gactcctgga ttctctgect agttgagctc ctgcattgct cctccttggg     1020
gaggtgaggg agagggtcca tggttcaatg ggcctctgtc agttgtaaca cattaggtgc     1080
ttaataaaca gaagctgtga tgttaaaaaa aaaaaaaaaa     1119

```

<210> 178

<211> 164

<212> PRT

<213> Homo sapien

<220>

<221> VARIANT

<222> (1)...(164)

<223> Xaa = Any Amino Acid

<400> 178

```

Met Glu Asn Glu Leu Phe Cys Ser Gly Val Leu Val His Pro Gln Trp
 1          5          10          15
Val Leu Ser Ala Ala His Cys Phe Gln Asn Ser Tyr Thr Ile Gly Leu
          20          25          30
Gly Leu His Ser Leu Glu Ala Asp Gln Glu Pro Gly Ser Gln Met Val
          35          40          45
Glu Ala Ser Leu Ser Val Arg His Pro Glu Tyr Asn Arg Pro Leu Leu
          50          55          60
Ala Asn Asp Leu Met Leu Ile Lys Leu Asp Glu Ser Val Ser Glu Ser
65          70          75          80
Asp Thr Ile Arg Ser Ile Ser Ile Ala Ser Gln Cys Pro Thr Ala Gly
          85          90          95
Asn Ser Cys Leu Val Ser Gly Trp Gly Leu Leu Ala Asn Asp Ala Val
          100          105          110
Ile Ala Ile Gln Ser Xaa Thr Val Gly Gly Trp Glu Cys Glu Lys Leu
          115          120          125
Ser Gln Pro Trp Gln Gly Cys Thr Ile Ser Ala Thr Ser Ser Ala Arg
          130          135          140
Thr Ser Cys Cys Ile Leu Thr Gly Cys Ser Leu Leu Leu Thr Ala Ser
145          150          155          160
Pro Gly Thr Leu

```

<210> 179

<211> 250

<212> DNA

<213> Homo sapien

<400> 179

```

ctggagtggc ttggtgtttc aagcccttgc aggaagcaga atgcaccttc tgaggcacct      60
ccagctggcc ccggccgggg gatgcgaggc tcggagcacc ctgcccgggc tgtgattgct     120
gccaggcaat gttcatctca gcttttctgt ccttttgcct ccggcaagcg cttctgtgtg     180
aagttcatat ctggagcctg atgtcttaac gaataaaggt cccatgctcc acccgaaaaa     240
aaaaaaaaaa                                     250

```

<210> 180

<211> 202

<212> DNA

<213> Homo sapien

<400> 180
 actagtcacag tgggtggaa ttccattgtg ttgggcccac cacaatgggt acctetaaca 60
 tcaccacagac cccgcccctg ccogtgcccc acgctgctgc taacgacagt atgatgctta 120
 ctctgtact cggaaactat ttttatgtaa ttaatgtatg cttctctgtt tataaatgac 180
 tgatttaaaa aaaaaaaaaa aa 202

<210> 181
 <211> 558
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> {1}...{558}
 <223> n = A,T,C or G

<400> 181
 tccytttgkt naggtttkkg agacamcock agacotwaan ctgtgtcaca gacttcyngg 60
 aatgttttagg cagtgttagt aatttcyctg taatgattct gttattactt tccnattct 120
 ttattcctct tctctctgaa gattaatgaa gttgaaaatt gaggtggata aatacaaaaa 180
 ggtagtgtga tagtataagt atctaagtgc agatgaaagt gtgttatata tatccattca 240
 aaattatgca agttagtaat tactcagggg taactaaatt accttaatat gctgttgaa 300
 ctactctgtt ccttggttag aaaaaattat aacaggact ttgttagttt gggaagccaa 360
 attgataata ttctatgttc taaaagtgg gctatacata aattattaag aatatggaw 420
 ttttattccc aggaatatgg kgttcatttt atgaatatta cscrggatag awgtwtgagt 480
 aaaaycagtt ttggtwaata ygtwaatat tcmataata acaakgcttt gacttatctc 540
 caaaaaaaaa aaaaaaaa 558

<210> 182
 <211> 479
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> {1}...{479}
 <223> n = A,T,C or G

<400> 182
 acagggwttk grggatgcta agsccccrga xwtggttga tccaacctg gcttwttttc 60
 agaggggaaa atggggccta gaaggtacag mscatytagy tgggtgcgntg gcacccctgg 120
 cstcacacag astcccgagt agctgggact acgggcacac agtcactgaa gcagggccctg 180
 ttwgcaatto acgttgccac ctccaactta aacattcttc atatgtgatg tcccttagtca 240
 ctaaggttaa actttccac ccagaaaagg caacttagat aaaatcttag agtaactttca 300
 tactmttcta agtccctctc cagcctcact kkgagtccm cytgggggtt gataggaant 360
 ntctcttggc tttctcaata aartctctat ycatctcatg ttaatttgg targcatara 420
 awtgstgaxa aaattaaaaa gttctgggtt mactctaaa aaaaaaaa 479

<210> 183
 <211> 384
 <212> DNA
 <213> Homo sapien

<400> 183
 aggcgggagc agaagctaaa gcaaaagccc aagaagagtg gcagtgccag cactgggtgcc 60
 agtaccagta ccaataacag tgccagtgc agtgccagca ccagtgggtg ctccagtgc 120
 ggtgccagcc tgacogccac tctcacattt gggctctctg ctggccttgg tggagctggt 180
 gccagcacca gtggcagctc tggcgccgtt ggtttctctt acaagtgaga ttttagatat 240

```

tgtaaatcct gccagtcctt ctcttcaagc caggggtgcac cctcagaaac ctactcaaca      300
cagcactcta ggcagccact atcaatcaat tgaagttgac actctgcatt aractcattt      360
gccatttcaa aaaaaaaaaa aaaa                                         384

```

```

<210> 184
<211> 496
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1) ... (496)
<223> n = A,T,C or G

```

```

<400> 184
accgaattgg gaccgctgga ttataagcga tcatgtyynt corytatkar ctcaacgagc      60
aggagatcag agtctatacg ctgaagaaat ttgacccgat gggacaacag aactgctcag      120
cccatcctgc toggttctcc ccagatgaca aatactctcg acacogaato accatcaaga      180
aacgcttcaa ggtgctcatg accagcaaac cgcgcctgt cctctgaggg tcccttaaac      240
tgatgtcttc ttgcccact gttacccctc ggagactcag taaccaaact ctctggactg      300
tgagccctga tgcctttttg ccagccatac tctttggcat ccagtctctc gtggcgattg      360
attatgcttg tgtgaggcaa tcatggtggc atcaccata aaggggaacac atttgacttt      420
ttttctcat attttaaatt actacmagaw tattwmagaw waatgawtt gaaaaactst      480
taaaaaaaaa aaaaaa                                         496

```

```

<210> 185
<211> 384
<212> DNA
<213> Homo sapien

```

```

<400> 185
gctggtagcc tatggcgkgy ccacaggagg ggctcctgag gccacggrac agtgacttcc      60
caagtatcyt ggcagcgctc ttctaccgtc cctaccgtca gatcttcggg cagattcccc      120
aggaggacat ggaagtgccc ctcatggagc acagcaactg ytcgtcggag cccggcttct      180
gggcacaccc tctggggccc caggcgggca cctgcgtctc ccagtatgcc aactggctgg      240
tggtgctgot cctcgtcact ttctgctcag tggccaacat cctgctgggc aacttgctca      300
ttgccatggt cagttacaca ttoggcaaaag tacaggggca cagcgatctc tactgggaag      360
ggcagcggtt accgctctcat ccgg                                         384

```

```

<210> 186
<211> 577
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1) ... (577)
<223> n = A,T,C or G

```

```

<400> 186
gagttagctc ctccacaacc ttgatgaggt cgtctgcagt ggctctctgc ttcataccgc      60
taccatogtc atactgtagg ttgcccacca cytcctggca tcttggggcg gcntaatatt      120
ccaggaanct ctcaatcaag tcaccgtcga tgaacacctg gggtgggttc tgtcttcgcg      180
tcggtgtgaa aggatctccc agaaggagt ctcgatcttc cccacacttt tgatgacttt      240
attgagtcga ttctgcatgt ccagcaggag gttgtaccag ctctctgaca gtgaggtrac      300
cagccctatc atgccgttga mogtgccgaa gaccaccgag ccttgtgtgg gggkkgaagt      360
ctcaccacga ttctgcatta ccagagagcc gtggcaaaag acattgacaa actcggccag      420
gtggaaaaag amcamctcct ggargtgttn gcegcctctc gtcagtgtgt ggcagcgtw      480

```

tcctttttgac acacaaacaa gttaaaggca ttttcagccc ccagaaantt gtcacatccc 540
 aagatntegc acagcactna tccagttggg attaaat 577

<210> 187
 <211> 534
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1)...(534)
 <223> n = A,T,C or G

<400> 187
 aacatcttcc tgtataatgc tgtgtaatat cgatccgactn ttgtctgatg agaatycaiw 60
 actkggaaaa gmaacattaa agcctcggaca ctgggtattaa aattcacaat atgcaacact 120
 ttaaaccagtg tgtcaatctg ctcccyynac tttgtcatca ccagtctggg aakaagggtta 180
 tgccctattc acacctgtta aaagggcgct aagcattttt gattcaacat cttttttttt 240
 gacacaagtc cgaaaaaagc aaaagtaaac agttatyaak ttgttagcca attcacttcc 300
 ttcctgggac agagccatyt gatttassaa gcaaattgca taatattgag cttyggggagc 360
 tgatatttga gcggaagagt agcctctota cttcaccaga cacaactccc tttcatattg 420
 ggatgttnac naaagtwtatg tctctwacag atgggatgct tttgtggcaa ttcctgtctg 480
 aggtctctcc agtttattta ccacttgcac aagaaggcgt tttcttctc aggc 534

<210> 188
 <211> 761
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1)...(761)
 <223> n = A,T,C or G

<400> 188
 agaaaccagt atctotnaaa acaacotctc atacccttctg gacctaattt tgtgtgcgtg 60
 tgtgtgtgcy cgcattattat atagacagggc acatcttttt tacttttgta aaagcttatg 120
 cctcttttggg atctatatct gtgaaagttt taatgatctg ccataatgtc ttggggagcct 180
 ttgtcttctg tgtaaatggt actagagaaa acacctatnt tatgagtcac tctagttngt 240
 tttattogac atgaaggaaa tttccagatn acaacctna caaactctcc ctkgackarg 300
 ggggacaaag aaaagcaaaa ctgamcataa raacacatwa cctgggtgaga arttgcataa 360
 acagaaatwr ggtagtatat tgaarnacag catcattaaa rmgtttwkttt wttctccctt 420
 gcaaaaaaca tgtacngact tcccgcttgag taatgccaaag ttgttttttt tatnataaaa 480
 cttgccctto attacatggt tnaaagtggg gtgggtgggoc aaatatttga aatgatggaa 540
 ctgactgata aagctgtaca aataagcagt gtgcctcaac agcaacacag taatgtttgac 600
 atgcttaatt cacaatgctt aatttcatta taaatgtttg ctaaaatata ctttgaacta 660
 tttttctgtn tttccagagc tgagatntta gattttatgt agtatnaagt gaaaaantac 720
 gaaaataata acattgaaga aaaaananaa aaanaaaaaa a 761

<210> 189
 <211> 482
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1)...(482)
 <223> n = A,T,C or G

<400> 189

```

tttttttttt tttgcgatn ctactatttt attgcaggan ggggggggtgt atgcacccga      60
caccgggggt atnagaagca agaaggaagg agggagggga cagcccttg ctgagcaaca      120
aagcggcctg ctgccttctc tgtctgtctc ctggtgcagg cacatgggga gaccttcccc      180
aaggcagggg ccaccagtc aggggtggga atacaggggg tgggaggtgt gcataagaag      240
tgataggcac aggcaccccg gtacagaccc ctgggtctct gacaggtnga ttctgaccag      300
gtcattgtgt cctgcccagg cacagcgta atctggaaaa gacagaatgc ttctcttttc      360
aaatttggct ngtcatngaa ngggcanttt tcccaattng gctnggtctt ggtacncttg      420
gttcggccca gctccnctg caaaaantat tcacrcnnct cmaattgct tgcngnccc      480
cc

```

<210> 190

<211> 471

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (471)

<223> n = A,T,C or G

<400> 190

```

tttttttttt ttttaaaaca gtttttcaca acaaaattta ttagaagaat agtgggttttg      60
aaaactctcg catccagtga gaactaccat acaccacatt acagctngga atgtactcca      120
aatgtctggg caaatgatac aatggaaaca ttcaatctta cacatgcacg aaagaacaaag      180
cgcttttgac atacaatgca caaaaaaaaa aggggggggg gaccacatgg attaaaattt      240
taagtactca tcacatacat taagacacag ttctagtcca gtcaaaaato agaaactgent      300
tgaaaaaatt catgtatgca atccaaacaa agaacttnat tggatgatcat gantnctcta      360
ctacatcnac cttgatcatt gccaggaaan aaagtttnaa ancaacnngt acaaaaaana      420
ctgttaattt anttcaacct ccgtacngaa aaatnttntt tatacactcc c      471

```

<210> 191

<211> 402

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (402)

<223> n = A,T,C or G

<400> 191

```

gagggaattga aggtctgttc taatgtcggm ctgttcagcc acccaactcta acaagttgct      60
gtcttccact caatgtctgt aagcttttta acccagacwg tatcttcata aatagaacaa      120
attcttccac agtcacatct tctaggacct ttttggatto agttagtata agctcttcca      180
cttccctttgt taagacttca tctggtaaag tottaagttt tgtagaaagg aattyaattg      240
ctogttctct aacaatgtcc tctccttgaa gtatttgggt gaacaaccca cctaaagtcc      300
cttgtgcat ccattttaaa tatacttaat agggcattgk tncactaggt taaattctgc      360
aagagtcato tgtctgcana agttgcgtta gtatatctgc ca      402

```

<210> 192

<211> 601

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)... (601)

<223> n = A,T,C or G

<400> 192

gagctcggat	ccaataatct	ctgtctgagg	gcagcacaca	tatncagtgc	catggnaact	60
ggctctacccc	acatgggagc	agcatgccc	agntatataa	ggtcattccc	tgagtcagac	120
atgcytyttt	gaytaccgtg	tgccaagtgc	tgggtgattct	yaccacacyt	ccatccogyt	180
cttttctgga	aaaactggca	cttktctgga	actagcarga	catcacttac	aaattcaccc	240
acgagacact	tgaaggtgt	aacaaagcga	ytcttgcat	gctttttgtc	cctccggcac	300
cagttgtcaa	tactaacccg	ctggcttgcc	tccatcacat	ctgtgatctg	tagctctgga	360
tacatctcct	gacagtactg	aagaacttct	tctttctgtt	caaaagcacc	tcttggtgcc	420
tgttggtaca	ggttcccatc	tcccagtcyg	aatgttcaca	tggcatatct	wacttcccat	480
aaaacattgc	gatttgaggc	tcagcaacag	caaatccctgt	tcgggcattg	gctgcaagag	540
cctcgtgtga	gcgggcagc	gcgaaggcag	gcgcggtgag	ccccaccagc	agcagaagca	600
g						601

<210> 193

<211> 608

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)... (608)

<223> n = A,T,C or G

<400> 193

atacagccca	natcccccca	cgaagatgag	cttgttgaact	gagaacctga	tgcggtaact	60
ggctcccgctg	tagccccagc	gactctccac	ctgctggaag	cggttgatgc	tgcactcytt	120
cccaacgcag	gcagmagcgg	gacgggtcaa	tgaactccay	tcttggtctg	gggtkgacgg	180
tkaagtgcag	gaagaggctg	accacctcgc	ggctccaccag	gatgcccagc	tgtgcgggac	240
ctgcagcgaa	actcctcgat	ggctcatgagc	gggaagcgaa	tgaggccccag	ggccttgccc	300
agaaccttcc	gcctgtttct	tggcgtcacc	tgcagctgct	gcgctgava	ctoggcctcg	360
gaccagcgga	caaacggcrt	tgaacagccg	cacctcaagg	atgcccgctg	tgtcgggctc	420
caggamngsc	accagcgctg	ccagggtcaat	gtcgggtgaag	ccctccggcg	gtrctggcgt	480
ctgcagtggt	tttgtcgatg	ttctccaggc	acaggctggc	cagctgcggg	tcatcgaaga	540
gtcgcgcctg	cgtgagcagc	atgaaggcgt	tgtcgggctg	cagttcttct	tcaggaaactc	600
cacgcaat						608

<210> 194

<211> 392

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)... (392)

<223> n = A,T,C or G

<400> 194

gaaeggctgg	accttgctc	gcattgtgct	tgttggcagg	gaataccttg	gcaagcagyt	60
ccagtcggag	cagccccaga	ccgttgccgc	ccgaagctaa	gcctgcctct	ggccttcccc	120
tcgcctcaa	tgcagaacca	gtagtgggag	cactgtgttt	agagttaaga	gtgaacactg	180
tttgatttta	cttgggaatt	tcctctgtta	tatagctttt	cccaatgcta	atttccaaac	240
aacaacaca	aaataacatg	tttgccctgt	aagtgttata	aaagtagggt	attctgtatt	300
taaagaaaat	attactgtta	catatactgc	ctgcaatttc	tgtatttatt	gkinctatgg	360
aaataaantat	agttattaaa	ggttgtcant	cc			392

<210> 195
 <211> 502
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (502)
 <223> n = A,T,C or G

<400> 195
 ccattkaggg ggtkagggkyc cagtttyccga gtggaagaaa caggccagga gaagtgcgtg 60
 ccgagctgag gcagatgttc ccacagtgac cccagagacc stgggatata gtytctgacc 120
 cctcncaagg aaagaccacs ttctggggac atgggctgga gggcaggacc tagaggcacc 180
 aagggaaagg cccattccgg ggtgtgtccc cggggaggaa ggggaaggggc tctgtgtgce 240
 ccccaagagg aagaggccct gagtccctgg atcagacacc ccttcaogtg tatccccaca 300
 caaatgcaag ctcaaccaagg tccccctctca gtcccccttc atacacctg amcggcact 360
 gscacacacc caccagagc acgcccaccc ccatggggar tgtgtctaaag gartogengg 420
 gcarogtgga catctngtcc cagaaggggg cagaatctcc aatagangga ctgaremtt 480
 gctnanaaaa aaaaanaaaa aa 502

<210> 196
 <211> 665
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (665)
 <223> n = A,T,C or G

<400> 196
 ggttacttgg ttctattgcc accacttagt ggatgtcatt tagaaccatt ttgtctgctc 60
 cctctggaag ccttgccgag agcggacttt gtaattgttg gagaataact gctgaatttc 120
 wagctgtttk gagttgatte gcaccactgc acccacaact tcaatatgaa aacyawttga 180
 actwatattat tatctgtgta aaagtataac aatgaaaatt ttgttctac tgtattkac 240
 aagtatgatg aaaagcaawa gatatacatt cttttattat gttaaattat gattgccatt 300
 attaatcggc aaaatgtgga gtgtatgttc ttttcacagt aatatatgcc ttttgtaact 360
 tcaacttggc atktttattgt aaatgartta caaaattcct aatttaagar aatggatgt 420
 watatttatt tcaattaatt ctttctkgt ttaogtwaat tttgaaaaga wtgcabgatt 480
 tottgacaga aatcgatctt gatgtgtggt aagtagtctg acccacatcc ctatgagttt 540
 ttcttagaat gtataaagg ttagcccat cnsacttcaa agaaaaaat gaccacatcc 600
 tttgcaatca ggtgaaatg tggcatgctn ttctaattcc aactttataa actagcaaan 660
 aagtg 665

<210> 197
 <211> 492
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (492)
 <223> n = A,T,C or G

<400> 197
 ccttnctttt ttttttttgc aggaaggatt ccatttattg tggatgcatt ttcacaatat 60
 atgtttattg gagcgatcca ttatcagtg aaagtatcaa gtgtttataa nctttttagg 120

```

aaggcagatt cacagaacat gctngtongc ttgcagtttt acctegtana gatnacagag      180
aattatagtc naaccagtaa acnaggaatt tacttttcaa aagatttaaat ccaactgaa      240
caaaattcta cctgaaact tactccatcc aaatatggga ataanagtca gcagtgtac      300
attctcttct gaactttaga tttcttagaa aaatatgtaa tagtgatcag gaagagctct      360
tgttcaaaag tacaacnaag caatgttccc ttaccatagg ccttaattoa aactttgatc      420
catttcaact ccatcacggg agtcaatgct acctgggaca cttgtacttt gtccatnctg      480
ancntggctt aa
492

```

```

<210> 198
<211> 478
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> {1}...{478}
<223> n = A,T,C or G

```

```

<400> 198
ttntttttgn atttcantct gtannaanta ttttcattat gtttattana aaaatatnaa      60
tgtntccacn acaaatcatn ttacntnagt aagaggccan ctacattgta caacatacac      120
tgagtatatt ttgaaaagga caagttttaa gtanacncat attgcccagc atancacatt      180
tatacatggc ttgattgata tttagcacag canaaactga gtgagttacc agaaanaaat      240
natatatgtc aatcngattt aagatacaaa acagatccta tggtaacatan catcctgtag      300
gagttgtggc tttatgttta ctgaaagtca atgcagttcc tgtacaaaga gatggccgta      360
agcattctag tactcttact ccatgggttaa gaatcgtaca cttatgttta catatgttca      420
gggtaagaat tgtgttaagt naanttatgg agaggtccan gagaaaaatt tgatncaa      478

```

```

<210> 199
<211> 482
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> {1}...{482}
<223> n = A,T,C or G

```

```

<400> 199
agtgaattgt cctccaacaa aaacctttga tcaagtttgt ggcaactgaca atcagaacct      60
tgctagttcc tgtcatctat tcgctactaa atgcagactg gaggggacca aaaaggggca      120
tcaactccag ctggattatt ttggagcctg caaatctatt cctacttgta cggactttga      180
agtgatccag tttcctctac ggatgagaga ctgggtcaag aatctctca tgcagcttta      240
tgaagccnac tctgaacacg ctgggttatct nagecggagaa ncagagaaat aaagtcnaga      300
aatittacct ggangaanaag aggcctttngg ctggggacca tcccattgaa cttctcttta      360
anggacttta agaanaaaact accacatgtn tgtngtatcc tggtyccngg cggtttantg      420
aacntngacn ncaccttntt ggaatanant cttgaacngn tccagaactt gtcctcttgc      480
ga
482

```

```

<210> 200
<211> 270
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> {1}...{270}
<223> n = A,T,C or G

```

<400> 200

cggcgcgaag tgcaactcca gctggggcgc	tgccgacgaa gattctgcca gcagttggte	60
cgactgcgac gacggcggcg gcgacagtgc	caggtgcagc gggggcgccg ggggtcttgc	120
aaggctgagc tgaogcgcca gaggtogtgt	cacgtcccac gaccttgacg ccgtcgggga	180
cagccgggaa acagtcgcgt gaangcggga	ggcctcgggg agccctcgcg gaaggcgccg	240
ccgagagata cgcaggtgca ggtggcgcgc		270

<210> 201

<211> 419

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (419)

<223> n = A, T, C or G

<400> 201

tttttttttt ttttggaaac tactgcgagc	acagcaggtc agcaacaagt ttatttttga	60
gctagcaagg taacagggtta gggcatgggt	acatgttcag gtcaacttcc ttgtctgtgg	120
ttgattgggt tgtcttctat gggcgggggg	ggggtagggg aaanogaagc anaantaaca	180
tgagatgggt gcacctcccc tgtagaacct	ggttacnaaa gcttggggca gttcacctgg	240
tctgtgaccg tcattttctt gacatcaatg	ttattagaag tcaggatata ttttagagag	300
tccactgtnt ctggagggag attaggggtt	cttgccaana tccaancaaa atccacntga	360
aaaagttgga tgatncangt acngaatacc	ganggcatan ttctcatant cgggtggcca	419

<210> 202

<211> 509

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (509)

<223> n = A, T, C or G

<400> 202

tttttttttt tttttttttt tttttttttt	tttttttttt tttttttttt tttttttttt	60
tggaacttaa tccattttta ttcaaaaatg	tctacaaant cttaaatnnc cattatacng	120
gttatttttc aaaatctaaa ntttatccaa	atnctagcca aantccttac ncaaatnaaa	180
tacnncnaaa aatcaaaaat atactntctt	ttcagcaaac ttngttacat aaattcaaaa	240
aatatatacg gctgggtgtt tcaaaagtac	attatcttaa cactgcaaac atnttttnaa	300
ggaactaaaa caaaaaaaa cactnccgca	aaggttaaa ggaacaacaa attcttttta	360
caacancnnc nattataaaa atcatatctc	aaatccttagg ggaatatata ctccacacng	420
ggaatctaac ttttacctna ctttgtttat	ttttttanaa ccattgtntt gggcccaaca	480
caatggnaat nccnccnnc tggactagt		509

<210> 203

<211> 583

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (583)

<223> n = A, T, C or G

<400> 203

tttttttttt	ttttttttag	ccccctctt	ataaaaaaca	agttaccatt	ttattttact	60
tacacatatt	tattttataa	ctggtattag	atattcaaaa	ggcagctttt	aaaatcaaac	120
taaatggaaa	ctgoccttaga	tacataattc	ttaggaaatta	gcttaaaatc	tgcctaaagt	180
gaaatcttct	tctagctctt	ttgactgtaa	atcttttgact	cttgtaaaaa	atcccaattc	240
atttttcttg	tctttaaaat	tatctaactc	ttccattttt	tcctatttcc	aagtcaattt	300
gcttctctag	cctcatttcc	tagctcttat	ctactattag	taagtgggtt	ttttcctaaa	360
agggaaaaaa	sgaagagana	atggcacaca	aaacaaacat	tttatattca	tatttctacc	420
tacgttaata	aaatagcatt	ctgtgaagcc	agctcaaaag	aaggcttaga	tctttctatg	480
tccatttttag	tcaactaaag	atatcnaaag	tgcagaatg	caaaagggtt	gtgaacattt	540
attcaaaagc	taataataaga	tatttcacat	actcatcttt	ctg		583

<210> 204

<211> 589

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (589)

<223> n = A,T,C or G

<400> 204

tttttttttt	tttttttttt	tttttttctc	tttttttttt	ttganaatga	ggatcgagtt	60
tttcaactct	tagatagggc	atgaagaaaa	ctcatctctc	cagctttaaa	ataacaatca	120
aactctcttat	gctatatcat	atttttaagt	aaactaatga	gtcactggct	tatctctctc	180
tgaaggaaat	ctgttcaatt	ttctcattca	tctagttata	tcaagtacta	ccttgcatat	240
tgagaggttt	ttcttctcta	tttacacata	tatttccatg	tgaatttgta	tcaaaccttt	300
attttcatgc	aaactagaaa	ataatgtntt	cttttgcata	agagaagaga	acaatatnag	360
cattacaaaa	ctgtcaaat	tgtttgttca	gnttatccat	tataattagt	tnggcaggag	420
ctaatacaaa	tcacattttac	ngacnagcaa	taataaaaact	gaagtaoag	ttaaatatcc	480
aaaataatta	aagggaacatt	tttagcctgg	gtataattag	ctaattcact	ttacaagcat	540
ctabtnagaa	tgaattcaca	tgttattact	ccttagccca	acacaatgg		589

<210> 205

<211> 545

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (545)

<223> n = A,T,C or G

<400> 205

tttttttttt	ttttttttagt	aataatcaga	acaattattca	tttttatatt	taaaattcat	60
agaaaagtgc	cttacattta	ataaaagtgt	gtttctcaaa	gtgatcagag	gaattagata	120
tngtcttgaa	caccaatatt	aatttgagga	aaatacacca	aaatacatta	agtaaaattat	180
ttaagatcat	agagcttgta	agtgaaaaaga	taaaatttga	cctcagaaac	tctgagcatt	240
aaaaatccac	tattagcaaa	taaaactacta	tggactctct	gctttaattt	tgtgatgaat	300
atggggtgct	actggtaaa	caacacattc	tgaaggatac	attacttagt	gatagattct	360
tatgtacttt	gctanattnac	gtggatatga	gttgacaagt	ttctctttct	tcaatctttt	420
aaggggcnga	ngaattgagg	aagaaaagaa	aaggattacg	catactgtcc	tttctatnng	480
aaggattaga	tatgtttcct	ttgccaatat	taaaaaata	ataatgttta	ctactagtga	540
aaccc						585

<210> 206

<211> 487

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(487)

<223> n = A,T,C or G

<400> 206

tttttttttt	tttttttagtc	aagtttctna	tttttattat	aatttaaagtc	ttgggtcattt	60
caatttattag	ctctgcaact	tacatattta	aatttaaagaa	acgttnttag	acaactgtta	120
caatttataa	atgtaagggtg	ccattattga	gtanatatat	tcctccaaga	gtggatgtgt	180
cccttctccc	accaactaat	gaancagcaa	cattagttta	attttattag	tagatnatac	240
actgctgcaa	acgctaattc	tcttctccat	ccccatgtng	atattgtgta	tatgtgtgag	300
ttggtnagaa	tgcctcanc	atctnaccat	caacagcaag	atgaagctag	gontgggctt	360
tgggtgaaa	tagactgtgt	ctgtctgaat	caaatgatct	gacctatcct	cggtggcaag	420
aactottcga	accgcttctt	caaaggcngc	tgcacacatt	gtggctctct	ttgcacttgt	480
ttcaaaa						487

<210> 207

<211> 332

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(332)

<223> n = A,T,C or G

<400> 207

tgaattgggt	aaaagactgc	atttttanaa	ctagcaactc	ttatttcttt	cccttaaaaa	60
tacatagcat	taaatcccaa	atcctattta	aagacctgac	agcttgagaa	ggtcactact	120
gcatttcata	gaccttcttg	tgggtctgtg	gttaactttg	aantctgaca	atccttgana	180
atctttgcat	gcagaggagg	taaaagggtat	tggattttca	cagaggaana	acacagcgca	240
gaaatgaagg	ggccaggctt	actgagcttg	tccactggag	ggctcatggg	tgggacatgg	300
aaaagaaggc	aggctaggcc	ctggggagcc	ca			332

<210> 208

<211> 524

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(524)

<223> n = A,T,C or G

<400> 208

agggcggtgt	gcggagggtg	ttactgtttt	gtctcagtaa	caataaatac	aaaagactg	60
gttgtgttcc	ggccccatcc	aaccacgaag	ttgatctctc	ttgtgtgcag	agtgactgat	120
tttaaaggac	atggagcttg	tcacaaatgtc	acaatgtccc	agtgtgaagg	gcacactcac	180
tcccggtgta	ttcacattta	gcaacccaca	ctagctcatg	agtcacatac	tgtaaatact	240
tttggcagaa	tacttnttga	aacttgca	tgataactaa	gatccaagat	atttcccaaa	300
gtaaatagaa	gtgggtcata	atattaatta	cctgttcaca	tcagcttcra	tttacaagtc	360
atgagcccag	acactgacat	caaactaagc	ccacttagac	tcctcaccac	cagtctgtcc	420
tgcatcaga	caggaggctg	tcacettgac	caaattctca	ccagtcacac	atctatccaa	480
adaaccattac	ctgatccact	tccggtaatg	caccaccttg	gtga		524

<210> 209
 <211> 159
 <212> DNA
 <213> Homo sapien

<400> 209
 gggtagggaa atccagagtt gccatggaga aaattccagt gtcagcattc ttgctccttg 60
 tggccctctc ctacactctg gccagagata ccacagtcaa acctggagcc aaaaaggaca 120
 caaaggactc tcgacccaaa ctgccccaga cctctctca 159

<210> 210
 <211> 256
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(256)
 <223> n = A,T,C or G

<400> 210
 actccctggc agacaaaggc agaggagaga gctctgttag ttctgtgttg ttgaactgcc 60
 actgaatttc ttctcacttg gactattaca tgccanttga gggactaatg gaaaaacgta 120
 tggggagatt ttanccaatt tangtntgta aatggggaga ctggggcagg cgggagagat 180
 ttgcagggtg naaatgggan ggctgggttg ttanatgaac agggacatag gaggtaggca 240
 ccaggatgct aatca 256

<210> 211
 <211> 264
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(264)
 <223> n = A,T,C or G

<400> 211
 acattgtttt tttagatata agcattgaga gagctctcct taaogtgaca caatggaagg 60
 actggaacac ataccacat ctttgttctg agggataatt ttctgataaa gtcttgctgt 120
 atattcaagc acatatgtta tatattatc agttccatgt ttatagccta gttaaggaga 180
 ggggagatac attcngaaag aggactgaaa gaaatactca agtnggaaaa cagaaaaaga 240
 aaaaaaggag caaatgagaa gctc 264

<210> 212
 <211> 328
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(328)
 <223> n = A,T,C or G

<400> 212
 acccaaaaac ccaatgctga atatttggct tcattattcc canattcttt gattgtcaaa 60
 ggatttaatg ttgtctcagc ttgggcactt cagttaggac ctaaggatgc cagccggcag 120
 gtttatatat gcagcaacaa tattcaagcg cgacaacagg ttattgaact tgccccccag 180

ctnaatttca	ttcccattga	cttgggatcc	ttatcatcag	ccagagagat	tgaaaattta	240
cccctacnac	tccttactct	ctgganaggg	ccagtgggtg	tagctataag	cttggccaca	300
cttttttttc	ctttattcct	ttgtcaga				328

<210> 213

<211> 250

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (250)

<223> n = A,T,C or G

<400> 213

acttatgagc	agagcgacat	atccnagtgt	agactgaata	aaactgaatt	ctctccagtt	60
taagcattg	ctcactgaag	ggatagaagt	gactgccagg	agggaaagta	agccaaggct	120
cattatgcca	aagganatat	acattttcaat	tctccaaact	tcttctcat	tccaagagtt	180
ttcaatattt	gcataaacct	gctgataanc	catgttaana	aacaaatata	tctctnacct	240
tctcatoggt						250

<210> 214

<211> 444

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (444)

<223> n = A,T,C or G

<400> 214

accagaatc	caatgctgaa	tatttggett	cattattccc	agattctttg	attgtcaaa	60
gatttaattg	tgtctcagct	tgggcacttc	agttaggacc	taaggatgcc	agccggcagg	120
tttatatatg	cagcaacaat	attcaagcgc	gacascagg	tattgaactt	gcccgccagt	180
tgaatttcat	tcccattgac	ttgggatcc	tatcatcagc	canagagatt	gaaaatttac	240
ccctacgact	ctttactctc	tggagagggc	castgggtgt	agctataagc	ttggccacat	300
ttttttttcc	ttttattcct	tgtcagagat	gggatttcac	catatgctan	aaaccaacag	360
agtgactttt	acaaaatttc	tataganatt	gtgaataaaa	ccttacctat	agttgccatt	420
actttgctct	ccctaataata	cctc				444

<210> 215

<211> 366

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (366)

<223> n = A,T,C or G

<400> 215

acttatgagc	agagcgacat	atccaagtgt	anaetgaata	aaactgaatt	ctctccagtt	60
taagcattg	ctcactgaag	ggatagaagt	gactgccagg	agggaaagta	agccaaggct	120
cattatgcca	aagganatat	acattttcaat	tctccaaact	tcttctcat	tccaagagtt	180
ttcaatattt	gcataaacct	gctgataagc	catgttgaga	aacaaatata	tctctgacct	240
tctcatoggt	aagcagaggg	tgtaggcaac	atggaccata	gogaanaaaa	aaacttagtaa	300
tccaagctgt	tttctacact	gtaaccagg	ttccaaccaa	ggtggaaata	tctataactt	360

ggtagcc

366

<210> 216
 <211> 260
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(260)
 <223> n = A,T,C or G

<400> 216
 ctgtataaac agaactccac tgcangaggg agggccggggc caggagaatc tccgcttgtc 60
 caagacaggg ggcctaaggag ggtctccaca ctgctnntaa gggctnttnc atttttttat 120
 taataaaaag tnnaaaaggg ctcttctcaa cttttttccc ttnggctgga aaatttaaaa 180
 atcaaaaatc tcttnaagct ntcaagctat catatatact ntatcctgaa aaagcaacat 240
 aattcttctt tccctccttt 260

<210> 217
 <211> 262
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(262)
 <223> n = A,T,C or G

<400> 217
 acctacgtgg gtaagtttan aaatgttata atttcaggaa naggsaacgca tataattgta 60
 tcttgccat aattttctat tttaataagg aaatagcaaa ttgggggtggg ggggaatgtag 120
 ggcattctac agtttgagca aaatgcaatt aaatgtggaa ggacagcact gaaaaatttt 180
 atgaataatc tgtatgatta tatgtctcta gagtagattt ataattagcc acctaaccta 240
 atatccttca tgccttgtaa gt 262

<210> 218
 <211> 205
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(205)
 <223> n = A,T,C or G

<400> 218
 accaagggtg tgcattaccg gaantggatc aangacacca tegtggccca cccctgagca 60
 cccctatcaa ctcccttttg tagtaacctt ggaaccttgg aaatgaccag gccaaagctc 120
 aggcctcccc agttctactg acctttgtcc ctangtntna ngtcacaggt tgcctaggaaa 180
 anaaatcagc agacacaggt gtaaa 205

<210> 219
 <211> 114
 <212> DNA
 <213> Homo sapien

<400> 219

tactgttttg tctcagtaac aataaataca aaaagactgg ttgtgttccg gcccacatcca 60
accacgaagt tgatttctct tgtgtgcaga gtgactgalt ttaaaggaca tggg 114

<210> 220
<211> 93
<212> DNA
<213> Homo sapien

<400> 220
actagccagc acaaaaggca gggtagcctg aattgcttcc tgccttttac atttctttta 60
aaataagcat ttagtgtca gtcctactg agt 93

<210> 221
<211> 167
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> {1}...{167}
<223> n = A,T,C or G

<400> 221
actangtga ggtgcgcaca aatatttgct gatattccct toatcttgga ttccatgagg 60
tcttttgcgc agcctgtggc tctactgtag taagtttctg ctgatgagga gccagnatgc 120
ccccactac ctccctgac gctcccccana aatcacccaa cctctgt 167

<210> 222
<211> 351
<212> DNA
<213> Homo sapien

<400> 222
agggcgtggt ggggaggggg gtactgacct cattagtagg aggatgcatt ctggcaccoc 60
gttcttcaac tgcctcccaa tctttaaag gccatactgc ataaagtcaa caacagataa 120
atgtttgctg aattaaagga tggatgaaaa aaattaataa tgaatttttg cataatccaa 180
ttctctcttt catabttcta gaagaagttt ctttgagcct attagatccc ggggaatcttt 240
taggtgagca tgattagaga gcttgtaggt tgcctttaca tatatctggc atatttgagt 300
ctcgatcaaa aacaatagat tggtaaaggt ggtattattg tattgataag t 351

<210> 223
<211> 383
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> {1}...{383}
<223> n = A,T,C or G

<400> 223
aaaacaaaca aacaaaaaaa acaattcttc attcagaaaa attatcttag ggactgatat 60
tggttaattat ggtcaattta atwrtttkt ggggcatttc ottacattgt cttgacaaga 120
tcaaaatgtc tgtgccaaaa ttttgtattt tatttggaga cctcttatca aaagtaatgc 180
tgccaaagga agtctaagga attagtagtg ttcccmtrac ttgtttggag tgtgctattc 240
taaaagattt tgatttccctg gaatgacaat tatattttaa ctttgggtggg ggaanagtt 300
ataggaccac agtcttcaat tctgatactt gtaaatatatt cttttattgc acttggtttg 360
accattaago tatatgttta aaa 383

<210> 224
 <211> 320
 <212> DNA
 <213> Homo sapien

<400> 224
 cccctgaagg cttcttgtta gaaaatagta cagttacaa ccaataggaa aacaaaaaga 60
 aaaagtttgt gacattgtag tagggagtgt gtacccctta ctcgccatca aaaaaaaat 120
 ggatcacatgg tttaaggata raagggcaat attttatcat atgttctaaa agagaaggaa 180
 gagaaaaata tactttctcr aatgggaagc ccttaaaggt gctttgatac tgaaggacac 240
 aatgtggcc gtccatcctc ctttaragtt gcatgaactg gacaoggtaa ctgttgacgt 300
 tttaractcm gcattgtgac 320

<210> 225
 <211> 1214
 <212> DNA
 <213> Homo sapien

<400> 225
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 aactctata ccatcggtgt gggcctgcac agtcttgagg ccgaccaaga gccagggagc 180
 cagatgggtg aggcagcct ctcgtacgg caccagagt acaacagacc cttgtctgct 240
 aacgaacctca tgtcatcaa gtgggacgaa tccgtgtccg agtctgacac catcoggagc 300
 atcagcatbg cttcgagtg cctacccgg gggaaactctt gctctgtttc tggctggggg 360
 ctgctgggga aggcagaaat gctacccgt ctgcatggtc tgaacgtgtc ggtggtgtct 420
 gaggaggtct gcagtaagct ctatgacccg ctgtaccacc ccagcatgtt ctgcgccggc 480
 ggaggggcaag accagaaggga ctcctgcac cgtgactctg gggggccctt gatctgcac 540
 gggtaacttc agggccttgt gtctttcggg aaagccccgt gtggccaagt tggcgtgcca 600
 ggtgtctaca ccaacctctg caaattcact gagtggatag agaaaaacct ccaggccagt 660
 taactctggg gactgggaa ccatgaaatt gaccccaaa tacatcctgc ggaagggaatt 720
 caggaatata tgttccagc cctcctccc tcaggccag gagtccagga cccagccccc 780
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 gagtccagac ccccagccc ctccctccc agacccagg gtcagggccc ccaacccctc 960
 ctccctcaga ctccagaggt caagccccc aacccctctt cccagaccc agaggtccag 1020
 gtcccagccc ctctccctc agacccagcg gtccaatgcc acctagactc tccctgtaca 1080
 cagtgcccc ttgtggcag ttgacccaac ctaccagtt ggttttctat tttttgtccc 1140
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 aaaaaaaa aaaa 1214

<210> 226
 <211> 119
 <212> DNA
 <213> Homo sapien

<400> 226
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 agaacctggc ccagtcataa tcattcatcc tgacagtggc aataatcagc ataaccagt 119

<210> 227
 <211> 818
 <212> DNA
 <213> Homo sapien

<400> 227
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acggacgggtt	cttagcaca	tttgtgaaat	ctgtgtaraa	ccgggctttg	caggggagat	180
aattttcctc	ctctggaggga	aagggtgggtga	ttgacaggca	gggagacagt	gacaaggcta	240
gagaaagcca	cgctcggcct	tctctgaacc	aggatggaa	ggcagacccc	tgaaaaagaa	300
gcttgtcccc	tcccaatcag	ccacttctga	gaacccccat	ctaaattcct	actggaaaag	360
agggcctcct	caggagcagt	ccaagagttt	tcaagataa	cgtgacaact	accatctaga	420
ggaaagggtg	caacctcagc	agagaagccg	agagcttaac	tctggctcgt	tccagagaca	480
acctgctggc	tgtcttggga	tgcgccagc	ctttgagagg	ccactacccc	atgaacttct	540
gccatccact	ggacatgaag	ctgaggacac	tgggcttcaa	cactgagttg	tcatgagagg	600
gacaggctct	gcccccaagc	cggctgaggg	cagcaaccac	tctcctcccc	tttctcagcg	660
aaagccattc	ccacaaatcc	agaccatacc	atgaagcaac	gagacccaaa	cagtttgggt	720
caagaggata	tgaggactgt	ctcagcctgg	ctttgggctg	acaccatgca	cacacacaa	780
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<210> 228

<211> 714

<212> DNA

<213> Homo sapien

<400> 228

actggagaca	ctgttgaact	tgatcaagac	ccagaccacc	ccagggtctcc	ttcgtgggat	60
gtcatgacgt	ttgacatacc	tttggaaaga	gcctcctcct	tggagatggg	aagacogtgc	120
tcttggccga	cctggcctct	cctggcctgt	ttcttaagat	gaggagtcac	atttcaatgg	180
taggaaaagt	ggcttcgtaa	aatagaagag	cagtcactgt	ggaactacca	aatggcgaga	240
tgtcgggtgc	acattgggggt	gctttgggat	aaaagattta	tgagccaact	attctctggc	300
accagattct	aggccagttt	gttccactga	agcttttccc	acagcagtec	acctctgcag	360
gctggcagct	gaatggcttg	cgggtggctc	tgtggcaaga	tcacactgag	atcgatgggt	420
gagaaggcta	ggatgcttgt	ctagtgttct	tagctgtcac	gttggctcct	tccaggttgg	480
ccagaacggtg	ttggccaactc	ccttctaaaa	cacaggcgcc	ctcctgggtga	cagtgaacccg	540
cgtgggtatg	ccttggccca	ttccagcagt	cccagttatg	cctttcaagt	ttggggtttg	600
ttctttccgt	taatgttctt	ctgtgttgtc	agctgtcttc	atttccctggg	ctaagcagca	660
ttgggagatg	tggaccagag	atccactcct	taagaaccag	tggcgaaaga	cactttcttt	720
cttcaactctg	aagtagctbg	tgggt				744

<210> 229

<211> 300

<212> DNA

<213> Homo sapien

<400> 229

cgagtcctggg	ttttgtctat	aaagtttgat	ccctcctttt	ctcatccaaa	tcatgtgaac	60
cattacacat	cgaaataaaa	gaaagggtggc	agacttgccc	aacgccaggc	tgacatgtgc	120
tgcagggttg	ttgtttttta	attattattg	ttagaaaagt	cacccacagt	ccctgttaat	180
ttgtatgtga	cagccaactc	tgagaaggtc	ctatttttcc	acctgcagag	gatccagtct	240
cactaggctc	ctccttgccc	tcacactgga	gtctccggca	gtgtgggtgc	ccactgacat	300

<210> 230

<211> 301

<212> DNA

<213> Homo sapien

<400> 230

cagcagaaca	aatacaata	tgaagagtgc	aaagatctca	taaaatctat	gctgagggaat	60
gagcgacagt	tcaaggagga	gaagcttgca	gagcagctca	agcaagctga	ggagctcagg	120
caatataaag	tccgtggttc	cactcaggaa	cagagagctga	cccagtttaag	ggagaagtgg	180
cgggaaggga	gagatgcctc	cctctcattg	aatgagcacc	tccaggccct	cctcactccg	240
gatgaaccgg	acaagtccca	ggggcaggac	ctccaagaaa	cagacctcgg	ccgcgaccac	300
g						301

<210> 231
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 231
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 caggaactcc aagtcacat ccttggcaac tggggacttg cgcaggttag ccttgaggat 120
 ggcaacacgg gactctctcat caggaagtgg gatgtagatg agctgatcaa gacggccagg 180
 tctgaggatg gcaggatcaa tgatgtcagg ccggttggta ccgccaatga tgaacacatt 240
 tttttttgtg gacatgcat ccatttctgt caggatctgg ttgatgactc ggtcagcagc 300
 c 301

<210> 232
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 232
 agtaggtatt tegtgagaag ttoaacacca aaactggaac atagttctcc ttcaagtgtt 60
 ggcgacagcg gggtctctctg attctggcat ataactttgt gtaaatcaac agccacctat 120
 agaagagtcg atctgctgtg aaggagagac agagaactct gggttccgtc gtctctgtcca 180
 cgtgctgtac caagtgtctg tgcagagctg ttacctgttc tcaactgaaa tctggctaata 240
 gctcttctgt atcaactctg attctgacaa toaatcaate aatggcctag agcaactgact 300
 g 301

<210> 233
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 233
 atgactgact tccagtaag gctctctaag gggtaagtag gaggatccac aggattctgag 60
 atgctaaggc cccagagatc gtttgatcca accctcttat ttccagaggg gaaaatgggg 120
 cctagaagtt acagagcate tegtgtgtgc gctggcaccg ctggcctcac acagactccc 180
 gagtagctgg gactacaggc acacagtcac tgaagcaggg cctgttagca attctatgag 240
 taaaaattaa catgagatga gtagagaact tattgagaaa gcaagagaaa atcctatcaa 300
 c 301

<210> 234
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 234
 aggtcctaca catcgagact catccatgat tgatcatgaat ttaaaaatta caagcaaaaga 60
 cttttcttcc atcatgatgc tttcttttgt ttcttctttt cgtttctctc tttttctttt 120
 tcaatttccg caacatactt ctcaatttct tcaggattta aaatcttgag ggattgatct 180
 cgcctcatga cagcaagttc aatgtttttg ccacctgact gaacctcttc caggagtggc 240
 tctatcacca gcttaatggg cagatcatct gcttcaatgg cttegtcagt atagttcttc 300
 c 301

<210> 235
 <211> 283
 <212> DNA
 <213> Homo sapien

<400> 235

tggggctgtg	catcaggogg	gtttgagaaa	tattoanttc	tcagcagaag	ccagaatttg	60
aattccctca	tcttttaggg	aatcatttac	cagggtttga	gaggattcag	acagctcagg	120
tgctttcact	aatgtctctg	aactctctgt	cctcttttgt	catggatagt	ccaataaata	180
atgttatctt	tgaactgatg	ctcataggag	agaatataag	aactctgagt	gatatcaaca	240
ctaggggatc	aaagaaatat	tagattttaag	ctcacactgg	tca		283

<210> 236

<211> 301

<212> DNA

<213> Homo sapien

<400> 236

aggtctctca	ccaactgcct	gaagcacggg	taaaattggg	aagaagtata	gtgcagcata	60
aatactttta	aatcgatcag	atttccctaa	cccacatgca	atcttcttca	ccagaagagg	120
toggagcagc	atcatttaata	ccaagcagaa	tgcgtaaatag	ataaatacaa	tggtatatag	180
tgggtagacg	gcttcattgag	tacagtgtae	tgtggtatcg	taactctggac	ttgggttgta	240
aagcatcgtg	taccagtcag	aaagcatcaa	tactcgacat	gaacgaatat	aaagascacc	300
a						301

<210> 237

<211> 301

<212> DNA

<213> Homo sapien

<400> 237

cagtggtagt	ggtgggtggac	gtggcgctgg	togtggtgcc	ttttttggtg	cccgctcaca	60
actcaatttt	tgctcgctcc	tttttggeet	tttccaattt	gtccatctca	atcttctggg	120
ccttgggttaa	tgctccatag	taggagtcct	cagaccagcc	atggggatca	aacatatact	180
ttgggtagtt	ggtgccaaag	tcgtcaatgg	cacagaatgg	atcagcttct	cgtaaatcta	240
gggttccgaa	attctttctt	cctttggata	atgtagttca	tatccattcc	ctcctttatc	300
t						301

<210> 238

<211> 301

<212> DNA

<213> Homo sapien

<400> 238

gggcagggtt	tttttttttt	ttttttgatg	gtgcagaccc	ttgctttatt	tgtctgacct	60
gttcacagtt	cagccccctg	ctcagaaaaa	caacggggcca	gctaaggaga	ggaggaggca	120
ccttgagact	tccggagtcg	aggctctcca	gggttcccca	gcccattcaat	cattttctgc	180
accccttgcc	tgggaagcag	ctccctgggg	gggtgggaatg	ggtsactaga	agggatttca	240
gtgtggggacc	cagggtctgt	tcttcacagt	aggaggtgga	agggatgact	aattttctta	300
t						301

<210> 239

<211> 239

<212> DNA

<213> Homo sapien

<400> 239

ataagcagct	aggggaattct	ttatttagta	atgtcctaac	ataaaagtcc	acataactgc	60
ttctgtcaaa	ccatgatact	gagctttgtg	acaaccacga	aataactaag	agaaggcaaa	120
cataatacct	tagagatcaa	gaaacattta	cacagttcaa	ctgttttaaaa	atagctcaac	180
attcagccag	tgagtagagt	gtgaatgccr	gcatacacag	tatacaggte	cctcagggg	239

<210> 240

<211> 300
 <212> DNA
 <213> Homo sapien

<400> 240
 ggtcctaattg aagcagcagc ttccacattt taacgcaggt ttaoggtgat actgtccttt 60
 gggatctgcc ctccagtggg accttttaag gaagaagtgg gcccaagcta agttccacat 120
 gctgggtgag ccagatgact tctgttccct ggtaactttc ttcaatgggg cgaatggggg 180
 ctgccaggtt tttaaaatca tgcctcatct tgaagcacac ggtcacttca cccctctcac 240
 gctgtgggtg taatttgatg aaaatacccc ctttgttggc ctttctgaag ctataatgta 300

<210> 241
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 241
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 cctcttttggg ggaacctcca gcagctatgt cggctgtctt gagggaatgc aacaaggctg 120
 ctcctccatg tattggaana ctgcaaatct gactcaactg gaagggaagt ctgctgccag 180
 bgtgaagAAC cagcctgagg tgaacagAAC ggaagcaaac aggaacagcc agtctttttt 240
 tctctctctt gtcatacgtt ctctctcaag catctcttct tctcaggggc ctaaaagggg 300
 g 301

<210> 242
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 242
 cagaggctct gggatgcaac caatcactct gtttcacgtg acttttatca ccatacaatt 60
 tgttggcattt cctcattttc tacattgtag aatcaagagt gtaaatatat gtatatgat 120
 gtcttcaaga atatatcatt ccttttccac tagaaccctt tcaaatata agtcaagaat 180
 cttaatatca acaaatatat caagcaaac ggaaggcaga ataactacca taatttagta 240
 taagtaccca aagttttata aatcaaaagc cctaattgata accattttta gaattcaatc 300
 * 301

<210> 243
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 243
 aggttaagtc cagtttgaag ctcaaaagat ctggtatgag cataggctca tggacgacat 60
 ggtggcccaa gctatgaaat cagagggagg cticactctg gcctgtaaaa actatgatgg 120
 tgacgtgcag tggactctg tggcccaagg gtatggetct ctgggcatga tgaaccaggt 180
 gctggtttgt ccagatggca agacagtaga agcagaggct gccacgggga ctgtaacccg 240
 tcaataccgc atgttccaga aaggacagga gacgtccacc aatcccattg cttccatttt 300
 t 301

<210> 244
 <211> 300
 <212> DNA
 <213> Homo sapien

<400> 244
 gctgggtttgc aagaatgaaa tgaatgattc tacagctagg acttaacctt gaaatggaaa 60
 gtcattgcaat cccatttgca ggaatctgtt gtgcacatgc ctctgtagag agcagcattc 120

ccaggggaact	tggaacacagt	tgacactgta	aggtgcttgc	cccccaagac	acatcctana	180
aggtgttgta	atggtgaaaa	cgtcttcctt	ctttattgoc	ccttcttatt	tatgtgaaca	240
actgtttgtc	tttctgtgat	ctttttttaa	ctgtaaagtt	caattgtgaa	aatgaatato	300

<210> 245
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 245						
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tataacttta	gataaaaaat	gaggtgaatt	actatccatt	gaaatcatgc	tcttagaatt	120
aaggccagga	gatattgtca	ttaatgtara	cttcaggaca	ctagagtata	gcagccctat	180
gttttcaaag	agcagagatg	caattaaata	ttgttttagca	tcaaaaagggc	cactcaatac	240
agctaataaa	atgaaagacc	taatttctaa	agcaattctt	tataatttac	aaagtcttaa	300
g						301

<210> 246
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 246						
ggtctgtcct	acaatgcctg	cttcttgaaa	gaagtcggca	ctttctagaa	tagctaaata	60
acctgggctt	atthtaaaaga	actctttgta	gctcagattg	gttttcttat	ggctaaaata	120
agtgtctctt	gtgaaaatta	aataaaacag	ttcaattcaa	gccttgatat	atgttaccac	180
taacaatcat	actaaatata	ttttgaagta	caaagtctga	catgctctaa	agtgacaacc	240
caaatgtgtc	ttacaaaaca	ogttcttaac	aaggtatgct	ctacactacc	aatgcagaaa	300
c						301

<210> 247
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 247						
aggtctctttg	gcagggtctca	tggatcagag	ctcaaaactgg	agggaaaggc	atttcgggta	60
gcctaagagg	gogactggcg	gcagcacaac	caagggaaggc	aagggtgttt	cccccaogct	120
gtgtcctgtg	ttcaggtgcg	acacacaatc	ctcatgggaa	caggatcacc	catgcgctgc	180
ccttgatgat	caagggttggg	gcttaagttg	attaaggggag	gcaagttctg	ggttctctgc	240
cttttcaaac	catgaagtca	ggctctgtat	ccctcctttt	cctaactgat	attctaacta	300
a						301

<210> 248
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 248						
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attaggaaga	ttcttagggg	taatttttct	gaggaaggag	aactagccaa	cttaagaatt	120
acaggaagaa	agtgttttgg	aagacagcca	aagaaataaa	agcagattaa	attgtatcag	180
gtacattcca	gcctgtttggc	aactccataa	aaacatttca	gatttctaato	cogaatttag	240
ctaattgagac	tggatttttg	ttttttatgt	tgtgtgtcgc	agagctaaaa	actcagttcc	300
c						301

<210> 249
 <211> 301

<212> DNA

<213> Homo sapien

<400> 249

gtccagagga	agcaccctggc	gctgaaactag	gcttgccctg	ctgtgaactt	gcacttggag	60
ccctgacgct	gctgttctcc	cggaaaaacc	cgacggacct	cgcgatctc	cgteccggcc	120
ccagggagac	acagcagtga	ctcagagctg	gtcgracact	gtgcctccct	cctcaccgcc	180
catcgtaatg	aattattttg	aaaattaatt	ccaccatcct	tbcagattct	ggatggaaag	240
actgaatcct	tgactcagaa	tgttttgcg	aaaagaatga	tgtgacttcc	ttagtcattt	300
a						301

<210> 250

<211> 301

<212> DNA

<213> Homo sapien

<400> 250

ggctctgtgac	aaggacttgc	aggtctgtggg	aggcaagtga	cccttaacac	tacacttctc	60
cttatcttcta	tgggttgat	asacataatt	attctataaa	ctagcttatt	tccagttgcc	120
cataagcaca	tcagtacttt	tctctggctg	gaatagtaaa	ctaaagtatg	gtacatctac	180
ctaaaagact	actatgtgga	ataatacata	ctaataaggt	attacatgat	ttaaagacta	240
caataaaacc	aaacatgcct	ataacattaa	gaaaaacaat	aaagatacat	gattgaacc	300
a						301

<210> 251

<211> 301

<212> DNA

<213> Homo sapien

<400> 251

gccgaggtcc	tacatttggc	ccagtttccc	cctgcattcct	ctccaggggc	cctgcctcat	60
agacaacctc	atagagcata	ggagaactgg	ttgccttggg	ggcaggggga	ctgtctggat	120
ggcaggggtc	ctcaaaaatg	ccactgtcac	tgccaggaaa	tgcttctgag	cagtacacct	180
cattgggata	aatgaaaagg	ttcaagaaat	ctccaggctc	actctcttga	agggccggaa	240
cctctggagg	ggggcagtg	aatcccagct	ccaggagcga	tcctgtcgaa	aagatattct	300
c						301

<210> 252

<211> 301

<212> DNA

<213> Homo sapien

<400> 252

gcaaccaatc	actctgttcc	acgtgacttt	tatcaccata	caatttctgg	catttctcca	60
ttttctarat	tgtagaatca	agagtgtaaa	tasatgtata	togatgtctt	caagaatata	120
tcattccctt	ttcactagga	accatttcaa	aataaagtc	aagaatctta	atatcaacaa	180
atatatcaag	caaactggaa	ggcagaataa	ctaccataat	ttagtataag	taccraaagt	240
tttataaatc	aaaagcccta	atgataacca	tttttgaat	tcaatcatca	ctgtagaatc	300
a						301

<210> 253

<211> 301

<212> DNA

<213> Homo sapien

<400> 253

ttccctaaga	agatgttatt	ttgttgggtt	ttgttccccc	tccctctcga	ttctcgtacc	60
caactaaaaa	aaaaaaataa	agaaaaaatg	tgctgcgttc	tgaaaaataa	ctccttagct	120

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tgggtotgatt gttttcagac cttaaaatat aaacttggtt cacaagcttt aatccatgtg      180
gattttttttt cttagagaac cacaaaaacat aaaaggagca agtcggactg aatacctgtt      240
tccatagtgc ccacagggta ttcttcacat ttcttcata ggaaastgct ttttcccaag      300
g                                          301

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<210> 254
<211> 301
<212> DNA
<213> Homo sapien

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<400> 254
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aacttgacca attcccttga agcgggtggg ttaaagcctg taaatgggaa caaaatcccc      120
ccaaatctct tcatcttacc ctgggtggact cctgactgta gaattttttg gttgaaacaa      180
gaaaaaataa aagcttttga cttttcaagg ttgcttaaca ggtactgaaa gactggcctc      240
acttaactg agccaggaaa agctgcagat ttattaatgg gtgtgttagt gtgcagtgcc      300
t                                          301

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<210> 255
<211> 302
<212> DNA
<213> Homo sapien

```

```

<400> 255
agcttttttt tttttttttt tttttttttt ttcattaaaa aatagtgtct tttattataa      60
attactgaaa tgtttttttt ctgaatatata atataaatat gtgcaaagtt tgacttggat      120
tgggattttt ttgagttctt caagcatctc ctaataccct caagggcctg agtagggggg      180
aggaaaaagg actggaggtg gaatttttat aaaaaacaa agtgattgag gcagattgta      240
aacattatta aaaaacanga aacaaacaaa aaatatagaga aaaaaaccac cccaacacac      300
aa                                          302

```

```

<210> 256
<211> 301
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1) ... (301)
<223> n - A,T,C or G

```

```

<400> 256
gttccagaaa acattgaagg tggttcttca aagtctaaat agggatacc cctctagcct      60
aggaccttcc tccccacac tcaatccacc aaaccatcca taatgcaccc agataggccc      120
acccccaaaa gcctggacac cttgagcaca cagttatgac caggacagac tcctctctat      180
aggcaaatag ctgctggcaa actggcatta cctgggttgt ggggatgggg gggcaagtgt      240
gtggcctctc ggcctggtta gcaagaacat tcagggtagg ctaagttan tcgtgttagt      300
t                                          301

```

```

<210> 257
<211> 301
<212> DNA
<213> Homo sapien

```

```

<400> 257
gttgtggagg aactctggct tgcctattaa gtccctactga ttttcaactat cccctgaatt      60
tccccactta tttttgtctt tcaactatgc aggcottaga agaggctctac ctgcctccag      120
tcttacctag tcaagtctac cccctggagt tagaatggcc atcctgaagt gaaaagtaat      180

```

gtcacattac tcccttcagt gattttcttgc agaagtgcc aacctgaat gccaccaaga 240
 tottaattct cactatctta atcttatctc tttagactct cttacaccc gagaaggctc 300
 c 301

<210> 258
 <211> 301
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> {1}...{301}
 <223> n = A,T,C or G

<400> 258
 cagcagtagt agatgccgta tgcctggccg cccagcactc ccaggatcag caccagcacc 60
 agggggccag ccaccagcg cagaagcaag ataaacagta ggctcaagac cagagccacc 120
 cccaggggca caagaatcca ataccaggac tgggcataat cttcaaagat cttaacactg 180
 atgtctcggg cattgaggct gtcaataana cgtgatccc ctgctgtatg gtggtgtcat 240
 tggtagatccc tgggagcgc ggtggagtaa cgttggtcca tgggaagcag cggccacaa 300
 c 301

<210> 259
 <211> 301
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> {1}...{301}
 <223> n = A,T,C or G

<400> 259
 tcataatagc aaacaaatgc agactangcc tcaggcagag actaaaggac atctcttggg 60
 gtgtcttgaa gtgatttggg cccctggggg cagacaccta agtaggaatc ccagtgggaa 120
 gcaagccat aaggaagccc aggatctctt gtgatcagga agtgggcccag gaaggctctg 180
 tccagctcac atctcatctg catgcagcac ggaccggatg cggccactgg gtcttggctt 240
 cctcccatc ttctcaagca gtgtccttgt tgagcattt gcctccttgg ctccagggtg 300
 c 301

<210> 260
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 260
 ttttttttct ccttaaggaa aaagaaggaa caagtctcat aaaaacaaat aagcaatgg 60
 aagggtgtctt aacttgaaaa agattaggag tcactggttt acaagttata attgaatgaa 120
 agaactgtaa cagccacagt tggccatttc atgccaatgg cagcaacaaa caggattaac 180
 tagggcaaaa taaataagtg tgtggaagcc ctgataagtg cttaataaac agactgatto 240
 actgagacat cagtacctgc ccggggcgcc gctcgagcgg aattctgcag atatccatca 300
 c 301

<210> 261
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 261

aaatattcga	gcaaatcctg	taactaatgt	gtctccataa	aagggtttga	actcagtgaa	60
tctgtttcca	tccacgattc	tagcaatgac	ctctcggaca	tcaaaagctcc	tcttaagggt	120
agcaccgaact	attccataca	attcatcagc	aggaataaaa	ggctcttcag	aagggttcaat	180
ggtgacatcc	aattttctct	gataatttag	attcctcaca	accttctag	ctaagtgaag	240
ggcatgatga	tcattccaaag	ccagtggtc	acttactcca	gaatttctgc	aatgaagatc	300

a

301

<210> 262

<211> 301

<212> DNA

<213> Homo sapien

<400> 262

gaggagagcc	tgttacagca	tttgtaagca	cagaatactc	caggagtatt	tgtaattgtc	60
tgtgagcttc	ttgcgcgaag	tctctcagaa	atttcaaaag	atgcaaatcc	ctgagtcacc	120
cctagacttc	ctaaaccaga	tcctctgggg	ctggaacctg	gcactctgca	tttgtaatga	180
gggtcttctg	gtgcacacct	aattttgtgc	atctttgccc	taaatcctgg	attagtgcgc	240
catactacc	cccacattat	aatgggatag	attcagagca	gatactctcc	agcaaaagat	300

c

301

<210> 263

<211> 301

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (301)

<223> n = A,T,C or G

<400> 263

tttagcttgt	ggtaaatgac	tcacaaaact	gattctaaaa	tcaagttaat	gtgaattttg	60
aaaattacta	cttaatecta	attcacaata	acaatggcat	taaggtttga	cttgagttgg	120
ttcttagtat	tattkatggt	aaataggctc	ctaccacttg	caaatcaactg	gccacctcat	180
taatgactga	cttcccagta	aggctctcta	aggggttaagt	angaggatcc	acaggatttg	240
agatgctaag	gccccagaga	tcgtttgatc	caacctctct	attttcagag	gggaaaatgg	300

g

301

<210> 264

<211> 301

<212> DNA

<213> Homo sapien

<400> 264

aaagacgtta	aaccactcta	ctaccacttg	tggaaactctc	aaagggtaaa	tgacaaaacc	60
aatgaatgac	tctaaaaaca	atatttacct	tteatgggtt	gtagacata	caaaaacaag	120
gtggatagat	ctagaattgt	aacatlttaa	gaaaaccata	acatttgaca	gatgagaag	180
ctcaattata	gatgcaaagt	tataactaaa	ctactatagt	agtaaaagaa	tacatttcac	240
accttcata	caaattcact	atcttggctt	gaggcactcc	ataaaatgta	tcacgtgcac	300

a

301

<210> 265

<211> 301

<212> DNA

<213> Homo sapien

<400> 265

tgcceaagtt	Atgtgttagt	gtatccgcac	ccagaggtaa	aactacactg	tcatttttgt	60
cttcttgtga	cgcagtattt	cttctctggg	gagaagccgg	gaagtcttct	cctggctcta	120
cataattctg	gaagtctcta	atcaactttt	gttccatttg	tttcatttct	tcaggaggga	180
ttttcagttt	gtcaacatgt	tctctaacaa	cacttgccca	tttctgtaaa	gaatccaaag	240
cagtcacagg	ctttgacatg	tcaacaacca	gcataactag	agkatccttc	agagatacgg	300
c						301

<210> 266
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 266	
taccgtctgc	ccttccctcc
atccaggcca	tctgccaatc
tacatgggtc	ctccattctg
acaccagatc	actctttcct
ctaccacacg	gcttgctatg
agcaagagac	acaacctcct
ctcttctgtg	ttccagcttc
ttttcctgtt	cttcccaccc
cttaagttct	attcctgggg
atagagacac	caatacccat
aacctctctc	ctaagcctcc
ttataaccca	gggtgcacag
cacagactcc	tgacaactgg
taaggccaat	gaactgggag
ctcacagctg	gctgtgcctg
a	

<210> 267
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 267	
aaagagcaca	ggccagctca
gcttgccttg	gccatctaga
ctcagccttg	ctccatgggg
gttctcagtg	ctgagtcctt
ccaggaaaaag	ctcactctaga
ccttctgagg	ctgaatcttc
atcctcagag	gcagcttctg
agagcctgat	attccttagcc
ttgatgggtct	ggagtaaaagc
ctcattctga	ttcctctcct
ttcttttctt	caagttgggt
ttcctcacat	cctctctgttc
aattcgtctc	agcttctctg
cttttagcct	catttccaga
agcttctctt	ctttggcctc
t	

<210> 268
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 268	
aatgtctcac	tcaactactt
cccagcctac	cgtggccctaa
ttctgggagt	tttctctctta
gatctcggga	gaagctgggtc
ttctcaaggag	aaggagggaag
garagatgta	actttggatc
tcgaagagga	agtctaatgg
aagtaattag	tcaacgggtcc
ttgttttagac	totttgggaata
tgctgggtgg	ctcagtgagc
ccttctggag	aaagcaagta
ttattcttaa	ggagtaacca
cttcccattg	ttctactctc
taccatcctc	aattgtatat
catgtattct	ttggagaact
a	

<210> 269
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 269	
taacaatata	cactagctat
cttttttaact	gtccatcatt
agcarcaatg	aagattcaat
aaaattacot	ttattcacac
atctcaaaaac	aattctgcaa
attcttagtg	aagcttaact
atagtccacag	accttaataa
ttcacattgt	tttctatgtc
tactgaaaat	aagttcacta
cttttctgga	tattctttac
aaaatcttat	taaaattcct
ggtattctca	cccccaatta
tcagtagra	caaccacctt
atgtagcttt	tacatgatag
ctctgtcgaa	gtttcacatc
t	

<210> 270
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 270
 cattgaagag cttttgcgaa acatcagaac acaagtgttt ataaaattaa ttaagcctta 60
 cacaagaata catattcctt ttatttctaa ggagttaaac atagatgtag ctgatgtgga 120
 gagcttgctg gtgcagtgc ttttggataa cactattcat ggccgaattg atcaagtc aa 180
 ccaactcctt gaactggatc atcagaagaa ggggtggtgca cgatatactg cactagataa 240
 tggaccaaac aactaaattc tctcaccagg ctgtatcagt aaactggctt aacagaaaac 300
 a 301

<210> 271
 <211> 301
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> {1}...{301}
 <223> n = A,T,C or G

<400> 271
 aaaaggttct cataagatta acaattttaa taaatatatt atagaacatt cttctctcatt 60
 tttatagctc atcttttagg ttgatattca gticattgctt cccttgctgt tcttgatcca 120
 gaattgcaat cacttcactc gccctgtattc gctccaattc tctataaagt ggggtccaagg 180
 tgaaccacag agccacagca caccctcttc ccttggtgac tgccttcacc ccattgonggt 240
 tctctcctcc agatganaac tgatcatgcy cccacatttt gggttttata gaagcagtc a 300
 c 301

<210> 272
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 272
 taaattgcta agccacagat aacaccaatc aatgggaaca aatcactgtc ttcaaatgtc 60
 ttatcagaaa accaatgag cctggaatct tcaataaac taanacatgcc gtatttagga 120
 tcaataaatt cctcatgat gagcaagaaa aattcttttg gcacccctcc tgcateraca 180
 gcattctctc caacaaatat aaccttgagt ggcctcttgt aatctatgtt ctttgttttc 240
 ctaaggactt ccattgcato tccatacata tttctctac gcaccactag aattaagcag 300
 g 301

<210> 273
 <211> 301
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> {1}...{301}
 <223> n = A,T,C or G

<400> 273
 acatgttgt atgtgtatct ttgggaaaaa aanaagacat cttgtttayt atttttttgg 60
 agagangctg ggacatggat aatcacwtaa ttctctayta tyactttaat ctgactyga a 120

```

gaacogtota aaaaataaat ttaccatgtc ctatatctct catagtatgc ttatttcacc 180
tttctttctgt ccagagagag tatcagtgac ananatttma ggggtgaamac atgmattggg 240
gggacttnty tttaengagm accctgcccg agcgccctcg makongantt ccgcsananc 300
t 301

```

```

<210> 274
<211> 301
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> {1}...{301}
<223> n = A,T,C or G

```

```

<400> 274
cttatatact ctttctcaga ggcaaaagag gagatgggta atgtagacaa ttctttgagg 60
aacagtaaat gattattaga gagaangaat ggaccaagga gacagaaatt aacttgtaaa 120
tgattctctt tgggaatctga atgagatcaa gaggccagct ttagcttctg gaaaagtcca 180
tctaggtatg gttgcattct ogtcttcttt tctgcagtag ataattgaggt aaccgaaggg 240
aattgtgctt cttttgataa gaagctttct tggtcatac aggaattctt aganaaagtc 300
c 301

```

```

<210> 275
<211> 301
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> {1}...{301}
<223> n = A,T,C or G

```

```

<400> 275
tcgggtgtcag cagcaogtgg cattgaacat tgcaatgtgg agcccaaac acaganaatg 60
gggtgaaatt ggccaacttt ctacttaact atgttggcaa ttttgcacac aacagtaagc 120
tggcccttct aataaaagaa aattgaaagg tttcttacta aacggaatta agtagtggag 180
tcaagagact ccagggcttc agcgtacctg cccggggcgg cgtctgaagc cgaattctgc 240
agatatccat cacactggcg gncgctcgan catgcatac gaaggnccaa ttccgccctat 300
a 301

```

```

<210> 276
<211> 301
<212> DNA
<213> Homo sapien

```

```

<400> 276
tgtacacata ctcaataaat aaatgactgc attgtgggat tattactata ctgattatat 60
ttatcatgtg acttctaact agaaaatgta tccaaaagca aaacagcaga tatacaaaat 120
taaagagaca gaagatagac attaacagat aaggcaactt atacattgag aatccaaatc 180
caatacattt aaacatttgg gaaatgaggg ggacaaatgg aagccagatc aattttgtgt 240
aaaactattc agtatgtttc ctttgccttc tgtctgagaa ggctctcctt caatggggat 300
g 301

```

```

<210> 277
<211> 301
<212> DNA
<213> Homo sapien

```


<220>
 <221> misc_feature
 <222> {1}...{301}
 <223> n = A,T,C or G

<400> 277
 ttgttgcag tcagttttt attacttgcg ttatgagtcg tcaactggga aattctaaag 60
 atacagagga attggaggaa gcagagcaac tgaatttaet ttaaaagaag gaasacattg 120
 gaatcatggc actcctgata ctttcccaaa tcaacactct caatgcccc cctcgtcct 180
 caccatagtg gggagactaa agtggccacg gatttgctt angtgtcag tgcgttctga 240
 gttonctgct gattacatct gaccagtctc cttttctcga agtcctcctg ttcaatcttg 300
 c 301

<210> 278
 <211> 301
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> {1}...{301}
 <223> n = A,T,C or G

<400> 278
 taccactaca ctccagcctg ggcaacagag caagacctgt ctcaaagcat aaaatgggaat 60
 aacatatcaa atgaacacgg gaaatgaag ctgacaattt atggaagcca ggccttgta 120
 cagtctctac tgttattatg cattacctgg gaatttataa aagcccttaa taataatgcc 180
 aatgaacatc tcatgtgtgc tcacaatgtt ctggcactat tataagtgtc tcacaggttt 240
 tatgtgtctt tctgaacttt atggantagg tactcggccg cgaacacgtc aagccgaatt 300
 c 301

<210> 279
 <211> 301
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> {1}...{301}
 <223> n = A,T,C or G

<400> 279
 aaagcaggaa tgacaaagct tgcctttctg statgttcta ggtgtattgt gacttttact 60
 gttatattaa ttgccaatat aagtaaatat agattatata tgtatagtgt ttcaaaaagc 120
 tttagacctt acctccagc caccocacag tgcctgatat ttcagagtcg gtcatttggt 180
 atacatgtgt agtccaaag cacataagct agaaanaaa atatttctag ggagcactac 240
 catctgtttt cacatgaat gccacacaca tagaactcca acatcaattt cattgcacag 300
 a 301

<210> 280
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 280
 ggtactggag ttttccctcc ctgtgaaaac gtaactactg ttgggagtga attgaggatg 60
 tagaaaggct gtagaaccac attgtggta atggaatatg gagaatatgg ttctcactct 120

tgagaaaaaa	acctaagatt	agcccaggta	gttgccctgta	acttcagttt	ttctgcctgg	180
gtttgatata	gtttagggtt	gggggttagat	taagatctaa	attacatcag	gacaaagaga	240
cagactatta	actccacagt	taattaaagga	gggatgttcc	atgtttattt	gttaaaagcg	300
t						301

<210> 281
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 281						
aggtacaaga	aggggaatgg	gaaagagctg	ctgctgtggc	attgttcaac	ttggatatto	60
gcggagcaat	ccaaatccctg	aatgaagggg	cattctctga	aaaaggagat	ctgaatctca	120
atgtggtagc	aatggcttta	tgggtttata	cggatgagas	gaactccctt	tggagagaaa	180
tgtgtagcac	actgcgatta	cagctaaata	acccgtattt	gtgtgtcatg	tttgcatctc	240
tgacaaagta	aacaggatct	tacgatggag	ttttgtatga	aaacaaagtt	gcagtaccto	300
g						301

<210> 282
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 282						
caggtactac	agaatttaaa	tactgacaag	caagtagitt	cttggcgtgc	acgaattgca	60
tccagaaccc	aaaaatttaag	aaattcaaaa	agacattcttg	tgggcacctg	ctagcacaga	120
agcgacagaag	caaagcccag	gcagaacctat	gctaacctta	cagctcagcc	tgcacagaag	180
cgcagaagca	aagccraggc	agaacctatg	taaccttaca	gtcagcctg	cacagaagcg	240
cagaagcaaa	gcccaggccag	aacatgctaa	ccttacagct	cagcctgcac	agaagracag	300
a						301

<210> 283
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 283						
atctgtatac	ggcagacaaa	ctttatarag	tgtagagagg	tgagcgaaag	gatgcraaag	60
cactttgagg	gctttataat	aatatgctgc	ttgaaaaaaa	aaatgtgtag	ttgatctcca	120
gtgcatctcc	agacatagta	aggggttgct	ctgaccaatc	aggtgatcat	ttttctctac	180
acttcccagg	ttttatgcaa	aaatctttgt	aaattctata	atggtgatat	gcattcttta	240
ggaaacatat	acatttttaa	aaatctattt	tatgtaaaga	ctgacagacg	aatttgcttt	300
g						301

<210> 284
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 284						
caggtacaaa	acgtatttaa	gtggcttaga	atttgaacat	ttgtggtctt	tatttaacttt	60
gcttcgtgtg	tgggcaaaag	aacatcttcc	ctaaatatat	attaccaaga	aaagcaagaa	120
gcagattagg	tttttgacaa	aacaaacagg	ccaaaagggg	gctgacctgg	agcagagcat	180
ggtgagaggc	aaggcatgag	agggcaagtt	tgttgtggac	agatctgtgc	ctactttatt	240
actggagtas	aagabaacaa	agttcattga	cttogaaggga	tatatacagt	gttagaaatt	300
a						301

<210> 285

<400> 285						
acatcaccat	gctcggatcc	cccacccatt	atcagtttga	tgtttacata	aataactctc	60
aattgatcatt	agtgtttttaa	aaaaataact	gaaaactcct	tctgcacccc	aattctctaac	120
caggaaagca	aatgctattt	acagacotgc	aagccctccc	tcaaacnaaa	ctattttctgg	180
attaaatatg	tctgacttct	tttgaggtca	cacgactagg	caaatgctat	ttacgatctg	240
caaagctgt	ttgaagagtc	aaagcccca	tgtgacacag	attctkggac	cctgtaacag	300
E						360

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<210> 266
<211> 301
<212> DNA
<213> Homo sapien
```

<div style="text-align: center;"><400> 286</div>						
taccactgca	ttccagcctg	ggtgacagag	tgagactcog	tctccaaaaa	aaacttttgct	60
tgtatattat	ttttgcctta	cagtggtatca	ttctagttagg	aaaggacagt	aagattttttt	120
atccaaaatgt	gtcatgccag	taagagatgt	tatattcttt	ttctattttct	tcctccaccca	180
aaataaagct	accataatgc	ttataaagtct	caaattttttg	gctttttacta	aaatgtgatt	240
gtttctgttc	attgtgtatg	cttcatcacc	tatatttaggc	aaattccactt	ttttcccttg	300
t						301

```
<210> 287
<211> 301
<212> DNA
<213> Homo sapien
```

<400> 287					
tacagatctg	ggactaat	attaaaatg	agtgtgctg	gatatatgga	gaatgttggg 60
ccagaagga	acgtagagat	cagatatattac	sacagctttg	ttttgagggg	tagaatatg 120
aatgatctt	gttatgaacg	cacagtcttag	gcagcagggc	cagaattcctg	acctctgcc 180
ccgtggttat	ctctcccca	gcttggtctg	ctcatgttat	cacagtattc	cattttgttt 240
gttgcatgct	ttgtgaagcc	atcaagattt	tctcgtctgt	tttcccttca	ttggtaatgc 300
t					301

```
<210> 268
<211> 301
<212> DNA
<213> Homo sapien
```

<400> 288							
gtacaccta	ctgcaaggac	agctgaggaa	tgtaatgggc	agcgcgtttt	aaagaagtag		60
agtcacatagg	aagacaaatt	ccagttccag	ctcagttctgg	gtatctgcac	agctgcacaaa		120
gattctttaaa	gacatttca	agagaatatt	tccctaaagt	tggcaatttg	gagatcatac		180
aaaagcatct	gcttttgtga	ttcaatttag	ctcatctggc	cactggaaga	atccaaacag		240
tctgccttaa	ttttggtatga	atgcatgatg	gaaattcaat	aatttagaaa	gttaaaaaaa		300
a							301

<210> 289
<211> 301

<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(301)
<223> n = A,T,C or G

<400> 289
ggcacactgt ttccatggtt tgtttctaca cattgtctcc tcaagtctcc tggaaaactta 60
gcttttgatg tctccaagta gtccaccttc atttaactct ttgaaactgt atcatctttg 120
ccaagtaaga gtggtggcct atttcagctg ctttgacaaa atgactggct cctgacttaa 180
cgttctataa atgaatgtgc tgaagcaaaag tgcccatggt ggcggcgaaan aagagaaaaga 240
tgtgttttgt ttggactct ctgtggtccc ttccaatgct gtgggtttcc aaccagnnga 300
a 301

<210> 290
<211> 301
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(301)
<223> n = A,T,C or G

<400> 290
acactgagct cttcttgata aatatacaga atgcttggca tatacaagat tctatactac 60
tgactgatct gtctcattct ctccacagctc ttacccccaa aagcttttcc accctaagtg 120
ttctgacctc cttttctaatt cacagtaggg atagaggcag anccacctac aatgaacatg 180
gagttctatc aagaggcaga aacagcacag aatcccagtt ttaccattog ctagcagtgc 240
tgccctgaac aaaaacattt ctccatgtct cattttcttc atgcttcaag taacagtggg 300
a 301

<210> 291
<211> 301
<212> DNA
<213> Homo sapien

<400> 291
caggtaacca tttcttctat cctagaaara tttcatttta tgttgktgaa acataaacaac 60
tatatcagct agattttttt tctatgcttt acctgctatg gaaaatttga cacattctgc 120
tttactcttc tgtttatagg tgaatcaca aatgtathtt tatgtattct gtagttcaat 180
agccatgggt gtbtacttca ttttaatttat tttagcatana gacattatga aaaggcctaa 240
acatgagctt cacttcacca ctaactaatt agcatctggt atttcttaac cgtaatgctt 300
a 301

<210> 292
<211> 301
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(301)
<223> n = A,T,C or G

<400> 292

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acctttttagt agtaatgtct aataataaat aagaaatcaa ttttataagg tccatatagc      60
tgtattaaat aatttttaag tttaaaagat aaaataccat cafttttaaat gtctggtattc      120
aaaaaccaag natataaccg aaaggaaaaa cagatgagac ataaaatgat ttgcnagatg      180
ggaaatatag taettyatga atgttnatta aattccagtt ataatagtgg ctacacactc      240
tcactacaca cacagacccc acagtcctat atgccacaaa cacatttcca taacttgaag      300
a                                          301

```

```

<210> 293
<211> 301
<212> DNA
<213> Homo sapien

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<400> 293
ggtaaccaagt gctgggtgcca gctgtttacc tgtttctcact gaaaagtctg gctaatgctc      60
ttgtgtagtc acttctgatt ctgacaatca atcaatcaat ggcttagagc actgactgtt      120
aacacaaacg tcactagcaa agtagcaaca gcttttaagtc taatacaaaa gctgttctgt      180
gtgagaattt tttaaaaggg tacttgtata ataacccttg tcatttttta tgtacctggg      240
ccgcgacccg gctaaagcga attctgcaga tatccatcac actggcgggc gctcgagcat      300
g                                          301

```

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<210> 294
<211> 301
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(301)
<223> n = A,T,C or G

```

```

<400> 294
tgaccataaa caatatacac tagctatctt tttaactgtc catcattagc accaatgaag      60
attcaataaa attaccttta ttacacacac tcaaaacaa tctgcaaat cttagtgaag      120
tttaactata gtcacaganc ttaaatattc acattgtttt ctatgtctac tgaataaag      180
ttcactactt ttctgggata ttctttacaa aatcttatta aaattcttgg tattatcacc      240
cccaattata cagtagcacc accaacttat gtggttttta catgatagct ctgtagaggt      300
t                                          301

```

```

<210> 295
<211> 305
<212> DNA
<213> Homo sapien

```

```

<400> 295
gtactctttc tctccctccc tctgaattta attctttcaa cttagcaattt gcaaggatta      60
cacatttcac tgtgatgtat attgtgttgc aaaaaaaaaa gtgtctttgt ttaaaattac      120
ttggtttgtg aatccatctt gctttttccc cattggaaac agtcaftaac ccatctctga      180
actggtagaa aaactcttga agagctagtc tctcagcctc tgacaggtga attggatggt      240
tctcagaacc atttcaccca gacagcctgt tcttatcttg ttttaataat tagtttgggt      300
tctct                                          305

```

```

<210> 296
<211> 301
<212> DNA
<213> Homo sapien

```

```

<400> 296
aggtaactatg ggaagctgct aaaataatat ttgatagtaa aagtatgtaa tgtgctatct      60

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cacctagtag	ttaactaaaa	ataaactgaa	actttatgga	atctgaagtt	attttccttg	120
attaaataga	attaataaac	caatatgagg	aaacatgaaa	ccatgcaatc	tactatcaac	180
tttgaaaaag	tgattgaacg	aaccacttag	ctttcagatg	atgaacctcg	ataagtcatt	240
tgctcattact	ataaatttta	aaatctgttc	ataagatggc	ctatagggag	gaanaagggg	300
c						301

<210> 297
 <211> 300
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (300)
 <223> n = A,T,C or G

<400> 297						
actgagtttt	aactggacgc	caagcaggca	aggetggaag	gttttgctct	ctttgtgcta	60
aaggtttttga	aaaccttgaa	ggagaatcat	tttgacaaga	agtacttaag	agtrtagaga	120
acaaagangt	gaaccagctg	aaagctctcg	ggggaanctt	acatgtgttg	ctaggcctgt	180
tccatcattg	ggagtgcact	ggccatccct	caaaattttg	ctgggctggc	ctgagtggtc	240
acogcaacctc	ggccgcgacc	acgctaagcc	gaattctgca	gatatacata	acactggcgg	300

<210> 298
 <211> 301
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (301)
 <223> n = A,T,C or G

<400> 298						
tatgggggttt	gtcacccaaa	agctgatgct	gagaaaggcc	tccctggggc	ccctcccgcg	60
ggcatctgag	agacctgggtg	ctccagtggt	tctggaaatg	ggccccagtg	ccgcccggctg	120
tgaagctctc	agatcaatca	cgggaagggc	ctggcggtgg	tggccacctg	gaaccacctt	180
gtcctgtctg	tttacatttc	actaycaggt	ttctctctgg	cattacnatt	tgttccccta	240
caacagtgac	ctgtgcattc	tgtgttggtc	tgtgtgtctc	gcaggctggc	ctcagcgagg	300
t						301

<210> 299
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 299						
gttttgagac	ggagtttcac	tcttggtgac	cagactggac	tgcattggca	gggtctctgc	60
tcaatgcacc	ctctgcctcc	caggttcgag	caattctcct	gcctcagcct	cccaggtagc	120
tgggattgca	ggctcacgcc	accataccca	gctaattttt	ttgtattttt	agtagagagc	180
gagtttcgcc	atgttgggca	gctgggtctc	aactcctgac	ctcaagcgac	ctgcctgcct	240
cggcctccca	aagtgtctga	attataggca	tgagtcaaca	cgcccagcct	aaagatatct	300
t						301

<210> 300
 <211> 301
 <212> DNA
 <213> Homo sapien

<400> 300

atccagtttt	atttgetgce	ccagtatctg	taaccaggag	tgccacaaa	tcttgcaga	60
tatgtccac	accactggg	aaagggtccc	acctggctac	ttcctctatc	agctgggtca	120
gctgcattcc	acaagggtct	cagcctaattg	agtttcacta	ccgcccagtc	tcaaaaactta	180
gtaaagcaag	accatgacat	ccccccacgg	aatcagaggt	ttgcccaccc	gtcttgttac	240
tataaagcct	gcctctaaca	gtccttggct	ctccacacca	atcccagagc	catccccat	300
g						301

<210> 301

<211> 301

<212> DNA

<213> Homo sapien

<400> 301

ttaaatttct	gagaggataa	aaaggacaaa	taetctagaa	atgtgtcttc	ttcagttctgc	60
agaggacccc	aggtctccaa	gcaaccacat	ggtcaggggc	atgaataatt	aaaagttcgt	120
gggaactcac	aaagaccctc	agagctgaga	cacccacaa	agtgggagct	cacaaagacc	180
ctcagagctg	agacacccac	aacagtggga	gtccacaaag	acctcagag	ctgagacacc	240
cacaacagca	cctcgttcag	ctgccacatg	tgtgaataag	gatgcaatgt	ccagaagtgt	300
c						301

<210> 302

<211> 301

<212> DNA

<213> Homo sapien

<400> 302

aggtacacat	ttagcttctg	gtaaatgact	cacaaaaactg	atcttaaaat	caagttaatg	60
tgaattttga	aaattactac	ttaatcttaa	ttcacataa	caatggcatt	aaggcttgac	120
ttgagttcgt	tcttagtatt	atttatggta	aataggctct	taccacttgc	aaataactgg	180
ccacatcatt	aatgactgac	ttccagtaa	ggctctctaa	ggggttaagta	ggaggatcca	240
caggatttga	gatgctaagg	ccccagagat	cgtttgatcc	aacctcttta	ttttcagagg	300
g						301

<210> 303

<211> 301

<212> DNA

<213> Homo sapien

<400> 303

aggtaccaac	tgtggaaata	ggtagaggat	cattttttct	ttccatataa	actaagttgt	60
atattgttct	ttgacagttt	aacacatctt	cttctgtcag	agattctttc	acaatagcac	120
tggctaattg	aactacogct	tgcattgtta	aaatgggtgt	ttgtgaaatg	atcataggcc	180
agtaacgggt	atgtttttct	aactgatctt	ttgtctgttc	caaagggaac	tcaagacttc	240
catcgatttt	atatctgggg	tatagaaaag	gagttaatct	gttttccctc	ataaattcac	300
c						301

<210> 304

<211> 301

<212> DNA

<213> Homo sapien

<400> 304

acatggatgt	tattttgcag	actgtcaacc	tgaatttcta	tttgettgc	attgcctaatt	60
tattagtttc	agtttcagct	tacccacttt	ttgtctgcaa	catgcaraas	agacagtgc	120
cttttttagt	tatcatatca	ggatcatct	cacattgggt	tgtgccatta	ctgggtcagt	180
gactttcagc	cacttgggta	aggtggagtt	ggccatctgt	ctccactgca	aaattactga	240

ttttccctttt gtaattcaata agtgtgtgtg tgaagattct ttgagatgag gtatatatat 300
c 301

<210> 305
<211> 301
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> [1]... (301)
<223> n = A,T,C or G

<400> 305
gangtacagc gtgggtcaagg taacaagaag aaaaaaatgt gagtggcacc ctgggatgag 60
caggggggaca gaactggaca gacacgttgt catttgcctgc tgtgggtagg aasatgggctg 120
taaaggagga gaacagata caaatctcc aactcagtat taaggatttc tcatgcctag 180
aatattggta gaaacaagaa tacattcata tggcaataaa ctaaccatgg tggacaacaa 240
ttctgggatt taagttggat accaangaaa ttgtattaaa agagctgttc atggaataag 300
a 301

<210> 306
<211> 9
<212> PRT
<213> Homo sapien

<400> 306
Val Leu Gly Trp Val Ala Glu Leu
1 5

<210> 307
<211> 637
<212> DNA
<213> Homo sapien

<400> 307
acaggggratg aaggggaaagg gagaggatga ggaagccccc ctggggattt ggtttcggtcc 60
ttgtgatcag gtgggtctatg ggggttlatcc ctacaaagaa gaatcccgaa atagggggcac 120
attgaggaat gatatttgag cccaaagagc attcaatcat tgttttattt gcttmtttt 180
cacaccattg gtgagggagg gattaccacc ctggggttat gaagatggtt gaacacccca 240
cacatagcac cggagatctg agatcaacag tttcttagcc atagagattc acagcccaga 300
gcaggaggagc gcttgacacac catgcaggat gacatggggg atgcgctcgg gattggtgtg 360
aagaagcaag gactgttaga ggcaggcttt atagtaacaa gacggctggg caaactctga 420
ttcccgtagg ggaatgtcat ggtcttgctt tactaagttt tgagactggc aggtagtga 480
actcattagg ctgagaacct tgtggaatgc acttgaccca actgatagag gaagtagcca 540
ggtagggagcc ttccccagtg ggtgtgggac atatctggca agattttctg gcactcctgg 600
ttacagatac tggggcagca aataaaactg aatcttg 637

<210> 308
<211> 647
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> [1]... (647)
<223> n = A,T,C or G

<400> 308

acgattttca	ttatcatgta	aatcgggtca	ctcaaggggc	caaccacagc	tgggagccac	60
tgtcagggg	aaggttcata	tgggaacttc	tactgcccac	ggttctatac	aggatataaa	120
ggngcctcac	agtatagatc	tggtagcaaa	gaagaagaaa	caaacactga	tctctttctg	180
ccacccctct	gaccttttgg	aactcctctg	acccttttaga	acaagcctac	ctaatactctg	240
ctagagaaaa	gaccaacaac	ggcctcaaag	gatctcttac	catgaaggtc	tcagctaatt	300
cttggttaag	atgtgggttc	cacattaggt	tctgaatatg	gggggaagg	tcaatttgc	360
catttttgt	gtggataaag	tcaggatgcc	caggggcoag	agcagggggc	tgtttgttt	420
gggsacaaatg	gttgagcata	taaccatagg	ttatggggga	caaaaacaaca	tcaaatgtcac	480
tgtatcaatt	gccatgaaga	cttgagggac	ctgaatctac	cgattcatct	taaggcagca	540
ggaccagttt	gagtggaac	aatgcagcag	cagaatcaat	ggaaacaaca	gaatgattgc	600
aatgtccttt	ttcttctct	gcttctgact	tgataaaaag	ggaccgt		647

<210> 309

<211> 460

<212> DNA

<213> Homo sapien

<400> 309

actttatagt	ttaggctgga	cattggaaaa	aaaaaaaagc	cagaacaaca	tgtgatagat	60
aatatgattg	gctgcacact	tcagactga	tgaatgatga	acgtgatgga	ctattgtatg	120
gagcacatct	tcagcaagag	ggggaataac	tcattcattt	tggccagcag	tgtttgatc	180
accaaacatc	atgccagaat	actcagcaaa	ccttcttagc	tcttgagaag	tcaaatgcog	240
ggggaattta	ttctctggca	ttttaatttg	actccttatg	tgagagcagc	ggctaccag	300
ctgggggtgt	ggagcgaacc	cgtcactagt	ggacatgcag	tggcagagct	cctggtaacc	360
acctagagga	atacacaggc	acatgtgtga	tgccaagcgt	gacacctgta	gcactcaaat	420
ttgtcttgtt	tttctcttct	ggtgtgtaag	attcttaagt			460

<210> 310

<211> 539

<212> DNA

<213> Homo sapien

<400> 310

acgggaactta	tcaaatataag	ataggaaaag	aagaaaactc	aaatattata	ggcagaaatg	60
ctaaagggtt	taaaatatgt	caggatttga	agaaggcatg	gataaagaac	aaagtctcgt	120
taggaagag	aaacacagaa	ggaagagaca	caataaaaag	cattatgtat	tctgtgagaa	180
gtcagacagt	aagatttctg	ggaaatgggt	tggtttcttg	tatggctatg	atttttagcaa	240
taattcttat	ggcagagaaa	gttaaaatcc	tttagcttgc	gtgaatgato	acttgcctgaa	300
ttctcctaa	taggcctgat	gaaggagggt	ttagaggaga	cacagacaca	atgaactgac	360
ctagatagaa	agccttagta	tactcagcta	ggaatagtga	ttctgagggc	acactgtgac	420
atgattatgt	cattacatgt	atggtagtga	tggggatgat	aggaagggaag	aaatttatggc	480
atattttcac	ccccacaaaa	gtcagttaaa	tattgggaca	ctaaccatcc	aggtcaaga	539

<210> 311

<211> 526

<212> DNA

<213> Homo sapien

<220>

<221> misc feature

<222> (1)...(526)

<223> n = A,T,C or G

<400> 311

cgaatttgag	ccaatgacat	agaattttac	aatcaagaa	gcttattctg	gggcatttc	60
ttttgaogtt	ttctctaaac	tactaaagag	gcattaatga	tccataaatt	atattatcta	120
catttacago	atttaaatg	tgttcagcat	gaaatattag	ctacagggga	agctaaataa	180

attaaacatg	gaataaagat	ttgtccctaa	atataatcta	caagaagact	ttgatatttg	240
tttttcacaa	gtgaagcatt	cttataaagt	gtcataaact	ttttggggaa	actatgggaa	300
aaaatgggga	aactctgaag	ggttttaagt	atcttacctg	aagctacaga	ctccataacc	360
ttcttttaca	gggagctcct	gcagccctta	cagaaatgag	tggttgagat	tcttgattgc	420
acagcaagag	cttctctatc	aaaccttttc	cttttttagt	atctgtgtat	caagtataaa	480
agttctataa	actgtagtnt	acttatttta	atccccaaag	cacagt		526

<210> 312

<211> 500

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (500)

<223> n = A,T,C or G

<400> 312

cctctctctc	ccccccct	gaactotagag	aaotgggttt	tctcccagta	ctccagcaat	60
tcattttctga	aagcagttga	gcacttttat	tccaaagtac	actgcagatg	ttcaaaactct	120
ccattttctct	ttcccttcca	cctgccagtt	ttgctgaactc	tcaactttgtc	atgagtgtaa	180
gcatttaagga	catttatgott	ottogattct	gaagacaggc	cctgctcatg	gatgactctg	240
gcttctctagg	aaaatatttt	tcttccaaaa	tcagtaggaa	atctaaactt	atccctcttt	300
tgagatgttc	tagcagcttc	agacatttgg	ttaagaaacc	atgggaaaaa	aaaaaatctt	360
tgctaattgtg	gtttcctttg	tcaaccanga	ttcttatttg	notgggtatag	aatatcagct	420
ctgaacgtgt	ggttaagatt	cttgtgtttg	aatataggag	aatcagttt	gctgaaaagt	480
tagtcttaak	tctctattgg					500

<210> 313

<211> 718

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (718)

<223> n = A,T,C or G

<400> 313

ggagatttct	gtggttttga	gccgagggag	accaggaaga	tctgcatggt	gggaaggacc	60
tgatgatcca	gaggtgagaa	ataagaangg	ctgctgactt	taccatctga	ggccacacat	120
ctgctgaaat	ggagataatt	aacatcacta	gaacacagca	gatgacaata	taattgtctaa	180
gtagtacat	gtttttgcac	atttccagcc	cttttaasta	tccacacaca	cagggaaggac	240
aaaaggaagc	acagagatcc	ctgggagaaa	tgccccggccg	ccatcttggg	tcactgatga	300
gcctogccct	gtgctgntc	ccgcttgtga	gggaaggaca	ttagaaaatg	aattgatgtg	360
ttccttaaag	gatggcagga	aaacagatcc	tgctgtggat	atttatttga	acgggattac	420
agatttgaaa	tgaagtccca	aagttagcat	taccaatgag	aggaaacag	acgagaaaat	480
cttgatggtt	cacaagacat	gcsacaaaca	aatgggaata	ctgtgatgac	acgagcagcc	540
aaactggggag	gagataccac	ggggcagagg	tcaggattct	ggccctgctg	cctaactgtg	600
ogttatacca	atcatttcta	tttctacctt	caaacaagct	gtngaataac	tgacttacgg	660
ttcttntggc	ccacattttc	atnaccaccc	ccntcntttt	aannttantic	caaantgt	718

<210> 314

<211> 358

<212> DNA

<213> Homo sapien

<400> 314

gtttattttac attacagaaa aaacatcaag acaatgtata ctatttcaaa tatatccata 60
 cataatcaaa tatagctgta gtacatgttt tcattgggtg agattaccac aaatgcaagg 120
 caacatgtgt agatctcttg tcttatttct ttgtctataa tactgtattg tgtagtccaa 180
 gctctcggtg gtccagccac tgtgaaacat gctcccttta gattaacctc gtggacgctc 240
 ttgttgtatt gctgaactgt agtgccctgt attttgcctc tgtctgtgaa tctgttgtct 300
 cctggggcat ttcttctgta tgcagaggac caccacacag atgacagcaa tctgaatt 358

<210> 315

<211> 341

<212> DNA

<213> Homo sapien

<400> 315

taccacctcc cccgtggcac tcatgagccg catcaccatg gtcaccagca ccatgaaggc 60
 atagggtgat atgaggacat ggaatgggac cccaaggatg gtctgtccaa agaagcgagt 120
 gacccccatt ctgaagatgt ctgggaacctc taccagcagg atgatgatag ccccaatgac 180
 agtcaccage tccccgacca gcccggatata gtccctaggg gtcatgtagg ctctctgaag 240
 tagcttctgc tgaagagggt tgttgcctcg ggggctctgt cggttattcg tccctgggctt 300
 gaggggggcg tagatgcagc acatggtgaa gcagatgatg t 341

<210> 316

<211> 151

<212> DNA

<213> Homo sapien

<400> 316

agactgggca agactcttac gccccacact gcaatttggg ctgtgtgcgg tatccattta 60
 tgtgggcctt tctcgagttt ctgattataa acaccactgg agcgatgtgt tgaactggact 120
 catccaggga gctctggttg caatattagt t 151

<210> 317

<211> 151

<212> DNA

<213> Homo sapien

<400> 317

agaactagtg gatcctaatt aaataacctga aacatatatt ggcatttata atgggtcaa 60
 atcttcattt atctctgggc ttaacctggt ctctgagggc tggggcagc agatcccagg 120
 ccagggtctt gttcttgcca cactgcttg a 151

<210> 318

<211> 151

<212> DNA

<213> Homo sapien

<400> 318

actggtggga ggcgctgttt agttggctgt ttccagaggg gtctttcggga gggacctcct 60
 gctgcagggt ggagctgttt tcttctggc gggagagcgc acattccact gctgaggctg 120
 tggggggcgt ttatcaggca gtgataaaca t 151

<210> 319

<211> 151

<212> DNA

<213> Homo sapien

<400> 319

aactagtggg tccagagcta taggtacagt gtgatctcag ctttgcaaac acattttcta 60
 catagatagt actaggtatt aatagatag taaagaaaga aatcacacca ttaataatgg 120

caagattggg tttatgtgat tttagtgggt a

151

<210> 320
 <211> 150
 <212> DNA
 <213> Homo sapien

<400> 320
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<210> 321
 <211> 151
 <212> DNA
 <213> Homo sapien

<400> 321
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<210> 322
 <211> 151
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(151)
 <223> n = A,T,C or G

<400> 322
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<210> 323
 <211> 151
 <212> DNA
 <213> Homo sapien

<220>
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 <222> (1)...(151)
 <223> n = A,T,C or G

<400> 323
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60
 120
 151

<210> 324
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 <212> DNA
 <213> Homo sapien

<220>

<221> misc_feature
 <222> {1}... (461)
 <223> n = A,T,C or G

<400> 324

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gccaccatgc accatggcat gccagagttc aacactgttg ctttgaasa ttgggtctga	420
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<210> 325
 <211> 400
 <212> DNA
 <213> Homo sapien

<400> 325

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gtttgtttt ggactctctg tggctccctc caatgtcttg ggtttccaa caggggaagg	300
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<210> 326
 <211> 1215
 <212> DNA
 <213> Homo sapien

<400> 326

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aaaaaaaaa aaaaaa	1215

<210> 327
 <211> 220

<212> PRT

<213> Homo sapien

<400> 327

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 20 30
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 35 40 45
 Leu His Ser Leu Glu Ala Asp Gln Glu Pro Gly Ser Gln Met Val Glu
 50 55 60
 Ala Ser Leu Ser Val Arg His Pro Glu Tyr Asn Arg Pro Leu Leu Ala
 65 70 75 80
 Asn Asp Leu Met Leu Ile Lys Leu Asp Glu Ser Val Ser Glu Ser Asp
 85 90 95
 Thr Ile Arg Ser Ile Ser Ile Ala Ser Gln Cys Pro Thr Ala Gly Asn
 100 105 110
 Ser Cys Leu Val Ser Gly Trp Gly Leu Leu Ala Asn Gly Arg Met Pro
 115 120 125
 Thr Val Leu Gln Cys Val Asn Val Ser Val Val Ser Glu Glu Val Cys
 130 135 140
 Ser Lys Leu Tyr Asp Pro Leu Tyr His Pro Ser Met Phe Cys Ala Gly
 145 150 155 160
 Gly Gly Gln Asp Gln Lys Asp Ser Cys Asn Gly Asp Ser Gly Gly Pro
 165 170 175
 Leu Ile Cys Asn Gly Tyr Leu Gln Gly Leu Val Ser Phe Gly Lys Ala
 180 185 190
 Pro Cys Gly Gln Val Gly Val Pro Gly Val Tyr Thr Asn Leu Cys Lys
 195 200 205
 Phe Thr Glu Tyr Ile Glu Lys Thr Val Gln Ala Ser
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<210> 328

<211> 234

<212> DNA

<213> Homo sapien

<400> 328

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 atccgcagtg ggtgctgta gccacacact gtctccagaa ctctacacc atcgggctgg 180
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<210> 329

<211> 77

<212> PRT

<213> Homo sapien

<400> 329

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 Phe Cys Ser Gly Val Leu Val His Pro Gln Trp Val Leu Ser Ala Thr
 35 40 45
 His Cys Phe Gln Asn Ser Tyr Thr Ile Gly Leu Gly Leu His Ser Leu
 50 55 60

Glu Ala Asp Gln Glu Pro Gly Ser Gln Met Val Glu Ala
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<210> 330
<211> 70
<212> DNA
<213> Homo sapien

<400> 330
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<210> 331
<211> 22
<212> PRT
<213> Homo sapien

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Val Ser Gly Ser Cys Ser
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<210> 332
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<212> DNA
<213> Homo sapien

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 <211> 3030
 <212> DNA
 <213> Homo sapien

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<210> 334

<211> 2417

<212> DNA

<213> Homo sapien

<400> 334

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<210> 336
 <211> 147
 <212> PRT
 <213> Homo sapien

<400> 336
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 20 25 30
 Pro Lys Gln Pro Gln Lys Arg Ser Arg Ala Ala Phe Ser His Thr Gln
 35 40 45
 Val Ile Glu Leu Glu Arg Lys Phe Ser His Gln Lys Tyr Leu Ser Ala
 50 55 60
 Pro Glu Arg Ala His Leu Ala Lys Asn Leu Lys Leu Thr Glu Thr Gln
 65 70 75 80
 Val Lys Ile Trp Phe Gln Asn Arg Arg Tyr Lys Thr Lys Arg Lys Gln
 85 90 95
 Leu Ser Ser Glu Leu Gly Asp Leu Glu Lys His Ser Ser Leu Pro Ala
 100 105 110
 Leu Lys Glu Glu Ala Phe Ser Arg Ala Ser Leu Val Ser Val Tyr Asn
 115 120 125
 Ser Tyr Pro Tyr Tyr Pro Tyr Leu Tyr Cys Val Gly Ser Trp Ser Pro
 130 135 140
 Ala Phe Trp
 145

<210> 337
 <211> 9
 <212> PRT
 <213> Homo sapien

<400> 337
 Ala Leu Thr Gly Phe Thr Phe Ser Ala
 1 5

<210> 338
 <211> 9
 <212> PRT
 <213> Homo sapien

<400> 338
 Leu Leu Ala Asn Asp Leu Met Leu Ile
 1 5

<210> 339
 <211> 318
 <212> PRT
 <213> Homo sapien

<400> 339
 Met Val Glu Leu Met Phe Pro Leu Leu Leu Leu Leu Pro Phe Leu
 1 5 10 15
 Leu Tyr Met Ala Ala Pro Gln Ile Arg Lys Met Leu Ser Ser Gly Val

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Cys Thr Ser	Thr Val Gln Leu	Pro Gly Lys Val Val Val	Val Thr Gly		
	35	40	45		
Ala Asn Thr	Gly Ile Gly Lys Glu Thr Ala Lys Glu Leu Ala Gln Arg				
	50	55	60		
Gly Ala Arg	Val Tyr Leu Ala Cys Arg Asp Val Glu Lys Gly Glu Leu				
	65	70	75	80	
Val Ala Lys	Glu Ile Gln Thr Thr Thr Gly Asn Gln Gln Val Leu Val				
	85	90	95		
Arg Lys Leu	Asp Leu Ser Asp Thr Lys Ser Ile Arg Ala Phe Ala Lys				
	100	105	110		
Gly Phe Leu	Ala Glu Glu Lys His Leu His Val Leu Ile Asn Asn Ala				
	115	120	125		
Gly Val Met	Met Cys Pro Tyr Ser Lys Thr Ala Asp Gly Phe Glu Met				
	130	135	140		
His Ile Gly	Val Asn His Leu Gly His Phe Leu Leu Thr His Leu Leu				
	145	150	155	160	
Leu Glu Lys	Leu Lys Glu Ser Ala Pro Ser Arg Ile Val Asn Val Ser				
	165	170	175		
Ser Leu Ala	His His Leu Gly Arg Ile His Phe His Asn Leu Gln Gly				
	180	185	190		
Glu Lys Phe	Tyr Asn Ala Gly Leu Ala Tyr Cys His Ser Lys Leu Ala				
	195	200	205		
Asn Ile Leu	Phe Thr Gln Glu Leu Ala Arg Arg Leu Lys Gly Ser Gly				
	210	215	220		
Val Thr Thr	Tyr Ser Val His Pro Gly Thr Val Gln Ser Glu Leu Val				
	225	230	235	240	
Arg His Ser	Ser Phe Met Arg Trp Met Trp Trp Leu Phe Ser Phe Phe				
	245	250	255		
Ile Lys Thr	Pro Gln Gln Gly Ala Gln Thr Ser Leu His Cys Ala Leu				
	260	265	270		
Thr Glu Gly	Leu Glu Ile Leu Ser Gly Asn His Phe Ser Asp Cys His				
	275	280	285		
Val Ala Trp	Val Ser Ala Gln Ala Arg Asn Glu Thr Ile Ala Arg Arg				
	290	295	300		
Leu Trp Asp	Val Ser Cys Asp Leu Leu Gly Leu Pro Ile Asp				
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<210> 340
 <211> 483
 <212> DNA
 <213> Homo sapien

<400> 340	
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ctcctgctgc aggtctggagt gtctttattc ctggcgggag accgcacatt ccactgctga	180
ggttgtgggg gcggtttatc aggcagtgat aaacataaga tgtcatttcc ttgactccgg	240
ccttcaattt tctctttggc tgaagacgga gtccgtggtg tcccgatgta actgacccct	300
gctocaaacg tgacatcaat gatgctcttc tgggggtgc tgatggcccg ctgggtcacg	360
tgetcaatct cgcattcga ctcttgcctc aaactgtatg aagacacctg actgcacgtt	420
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ctg	483

<210> 341
 <211> 344
 <212> DNA
 <213> Homo sapien

<400> 341

ctgctgctga gtcacagatt tcattataaa tagcctccct aaggaaaata cactgaatgc	60
tatttttact aagcattcta tttttataga aatagctgag agtttctaaa ccaactctct	120
gctgccttac aagtattaaa tattttactt ctttccataa agagtagctc aaaatatgca	180
atcaatttaa taattttctga tgatgggttt atctgcagta atctgtatat catctattag	240
aetttaetta atgaaaaact gaagagaaac aaattttgtaa ccactagcac ttaagtaactc	300
ctgattctta acattgtctt taatgaccac aagacaacca acag	344

<210> 342

<211> 592

<212> DNA

<213> Homo sapien

<400> 342

acggcaaaaa agaaactgag aagccccaty tgcctttcttg ttaacatcca ctatccaaac	60
caatgtggaa acttcttata cttgggttcca ttatgaagtc ggacaattgc tgctatcaca	120
cctggcaggt aaaccaatgc caagagagtg atggaaacca ttggcaagac tttgttgatg	180
accaggattg gaattttata aaatatattgt tgatgggaag ttgctaagg gtgaattact	240
tccctcagaa gagtgttaag aaagtccaga gatgctataa tagcagctat ttaatttggc	300
aagtgccact gtggaaagag ttctgtgttg tgcgaagtc ctgaaggcca gtcaaatcca	360
tcagcatggg ctgttttggtg caaatgcaaa agcacaggtc tttttagcat gctggtctct	420
ccgtgtctct tatgcataata atcgtctctt totaaatttc tcttaggctt cattttccaa	480
agttcttctt ggtttgtgat gtctttcttg ctttccatta attctataaa atagtatggc	540
ttcagccacc cactcttctc cttagcttga cagtgaagtc cggctgccc tg	592

<210> 343

<211> 382

<212> DNA

<213> Homo sapien

<400> 343

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cttgtaactc tcttctctcc tttcttctcc tttctctgcc cgccttctcc atctgtgtgt	180
agacttcttg attgtcagtc tgtgtcacat ccagtgaatt ttttggtttc gtctcccttt	240
ctgactgcc accggggctca gaaccccgag aatcccttcc tttcactacc ttctttcttg	300
ggggtagttg gaagggaactg aaattgtggg ggggaaggtag gaggcacatc aataangagg	360
aaaccaccaa gctgaaaaaa aa	382

<210> 344

<211> 536

<212> DNA

<213> Homo sapien

<400> 344

ctggggcctga agctgtaggg taaatcagag gcaggcttct gagtgatgag agtcttgaga	60
caataggcca cataaacttg gctggatgga acctcacaat aagggtggtca cctcttggtt	120
gttttaggggg atgccaagga taaggccagc tcagttatat gaagagaagc agaacaasca	180
agtctttcag agaaatggat gcaatcagag tgggatcccg gtcacatcaa ggtcacactc	240
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tcagacctat atcccccgcc cgcgtccctt totccataaa attcttctta gtactatta	360
ccttcttatt atttgatcta gaaattgccc tctttttacc cctaccatga gccctacaaa	420
caactaaact gccactaata gtaatgtaat cctcttatt aatcctate ctagecctaa	480
gtctggccta tgagtgaact caaaaaggat tagactgagc cgaataacaa aaaaaa	536

<210> 345

<211> 251

<212> DNA

<213> Homo sapien

<400> 345

acctttttgag gtctctctca ccacctccac agccacogtc acogtgggat gtgctggatg	60
tgaatgaagc ccccatcttt gtgcctcctg aaaagagagt ggaagtgtcc gaggaotttg	120
gcgtgggcca ggaatccaca tcttaactg cccaggagcc agacacatt atggaacaga	180
aaataacata tcggatttgg agagacactg ccaactggct ggagattaat cgggacactg	240
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<210> 346

<211> 282

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(282)

<223> n = A,T,C or G

<400> 346

cgctctctg acactgtgat catgacaggg gttcaaacag aaagtgcctg ggccctcctt	60
ctagtctctg ttacccaaaa aaggaaaaag aaaagatctt ctcagttaca aattctggga	120
agggagacta taactggctc ttgacctaaag tgaagaggtc tccctcccg accaasaaat	180
agaaaggctt tctatttcac cggccacagt agggggaagg agagtaactt tgagtctgtg	240
ggtctcattt cccaagggtc cttcaatgct catnaaaacc aa	282

<210> 347

<211> 201

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(201)

<223> n = A,T,C or G

<400> 347

acacacataa tattatataa tgccatctaa ttggaaggag ctttctatca ttgcaagtca	60
taaatataac ttttaaaana ntactancag cttttaocta ngctoctaaa tgcttgtaaa	120
tctgagactg actggaccca cccagaccca gggcaagagt acatgttacc atatactctt	180
tataaagaat ttttttttgt c	201

<210> 348

<211> 251

<212> DNA

<213> Homo sapien

<400> 348

ctgttaatca caacatttgt gcatcaactg tgccaagtga gaaatgttc taaatcaca	60
agagagaaca gtgccagaat gaaactgacc ctaagtccca ggtgcccctg ggcaggcaga	120
aggagacact cccagcatgg agggagggtt atcttttcat cctaggtcag gtctacaatg	180
gggggaagggt ttattataga actcccaaca gcccacctca ctcttgccac ccacccgatg	240
gcctgcctc c	251

<210> 349

<211> 251

<212> DNA

<213> Homo sapien

<400> 349

taaaaaatcaa	gccatttaaat	tgtatctttt	aaggtaaaaca	atatatggga	gttggatcac	60
aaacccctgag	gatgccagag	ctatgggtcc	agaacatggg	gtggatattat	caacagagtt	120
cagaaggggtc	tgaactctac	gtgttaccag	agaacataat	gcaattcatg	cattccactt	180
agcaattttg	taaaatacca	gaaacagacc	ccaagagttc	ttcaagatga	ggaaaattca	240
actcctgggt	t					251

<210> 350

<211> 908

<212> DNA

<213> Homo sapien

<400> 350

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agcccgcccg	gtgaagctcg	ctgcttctcc	tactctctta	agtgaactgc	aaaacgcccac	120
cggtctggat	tgtctctggc	atgatgacag	agaaaatgat	ctcttctctc	gtgacaccaa	180
cacctgtaaa	tttgatgggg	aattgtttaag	aattggagac	actgtgactt	gcgtctgtca	240
gttcaagbgc	aaacaatgact	atgtgcctgt	gtgtggctcc	aattggggaga	gttaccagaa	300
tgagtgttac	ctgcgacagg	ctgcctgcaa	acagcagagt	gagatacttg	tgggtgtcaga	360
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ctgtgatatt	tgcagttttg	gtgcagaatg	tgacgaagat	gccgaggatg	tctgggtgtg	480
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ttatgcaaga	acagatttat	cagagaatgc	taacaaatta	gaagaaagtg	ccagagaaca	720
ccacatacc	tgtccggaa	attacaatgg	cttctgcctg	catgggaagt	gtgagcatcc	780
tatcaataty	caggagccat	cttgcagggt	tgatgctggg	tatactggac	aacactgtga	840
aaaaaaggac	tacagtgttc	tatacgttgt	tcccggtcct	gtacgatttc	agtatgtctt	900
aatcgag						908

<210> 351

<211> 472

<212> DNA

<213> Homo sapien

<400> 351

ccagttattt	gcaagtggta	agagccatatt	taccataaat	aatactaaga	accaactcaa	60
gtcaaacctt	aatgccattg	ttatttgtga	ttaggattaa	gtagttaatt	tcaaaattca	120
catlaacttg	attttaaaat	cagwtttgyg	agtcatttac	cacaagctaa	atgtgtacac	180
tatgataaaa	acaaccattg	tattcctgtt	tttctaaaca	gtcctaattt	ctaacactgt	240
atatatcctt	cgacatcaat	gaactttgtt	ttcttttact	ccagtaataa	agtaggcaca	300
gatctgttca	caacaaactt	gcctctctat	gccttgcctc	traccatgct	ctgctccagg	360
ccagccctct	tttggcctgt	ttgttttctc	aaaaacctaa	tctgcttctt	gcttttctctg	420
gtaatatata	tttagggag	atgttgtctt	gccacacac	gaagcaagt	aa	472

<210> 352

<211> 251

<212> DNA

<213> Homo sapien

<400> 352

ctcaaaagcta	atctctcggg	aatcaaacca	gaaaaggcca	aggatcttag	gcattgggtgga	60
tgtggataag	gccagggtcaa	tggctgcaag	catgcagaga	aagagggtaca	tccggagcgtg	120
caggctgcgt	tccgtcctta	cgatgaagac	cacgatgcag	tttccaaaca	ttgccactac	180
atcatggaa	aggaggggga	agccaaccca	gaaatgggct	ttctctaate	ctgggatacc	240
aataagcaca	a					251

<210> 353
 <211> 436
 <212> DNA
 <213> Homo sapien

<400> 353
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 cacattatgg tattattact atactgatta tattttatcat gtgacttcta attaxaaaat 120
 gtatccaaaa gcaaaacagc agatatacaa aattaaagag acagaagata gacattaaca 180
 gataaggcaa ctatatacatt gacaatccaa atccaataca tttaaacatt tgggaatatga 240
 gggggacbaa tgggaagccar atcaaatatt tgtaaaacta ttcagtatgt ttcccttgct 300
 tcatgtctga raaggctctc ccttcaatgg ggatgacaaa ctccaaatgc cacacaaatg 360
 ttaacagaat actagattca cactggaacg ggggtaaaga agaaattatt ttctataaaa 420
 gggctcctaa tgtagt 436

<210> 354
 <211> 854
 <212> DNA
 <213> Homo sapien

<400> 354
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 atcagggacc accctttggg ttgatatttt gcttaactct catcttttga gtaagatcat 180
 ctggcagtag aagctgttct ccaggtacat ttctctagct catgtacaaa aacatcctga 240
 aggactttgt caggtgcctt gctaaaagcc agatgcgttc ggcacttcct tggctctgag 300
 ttaattgcac acctaacagc actgggctca tgccttcaag tattttgtcc tcaactttag 360
 gtgagtgaan gatccccctt ataggagcac ttggggagaga tnatataaaa gctgactctt 420
 ggtacatgc agtaactggg tagatgtgtg tgggtgtgtc tcatctctgc aagggtgctt 480
 gttagggagt gtttccagga ggaaccaagtc tgaaccaaat catgaaataa atggtaggtg 540
 tgaactggaa aactaattca aaagagagat cgtgatatac gtgtgggttg tacaccttg 600
 caatatggaa ggctctaatt tgcctatatt tgaataata attcagcttt ttgtaataca 660
 aaataacaaa ggattgagaa tcatgtgtgc caatgtataa aagacccagg aaacataaat 720
 atatcaactg cataaatgta aaatgcattg gacccaagaa gggcccaaaag tggcagacaa 780
 cattgtaccc atttctcctt ccaaaatgtg aggggggggc ctgctgcttt caaggctgtc 840
 acacgggatg ttag 854

<210> 355
 <211> 676
 <212> DNA
 <213> Homo sapien

<400> 355
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 caggtcaaaag ctgacttttc tggaaatgtc ccaaccaagg gcttatattt atcaaaaagcc 120
 atccacaagt catacctgga tgtcagcgaa gaggggcaagg aggcagcagc agccactggg 180
 gacagcatcg ctgtaaaaag cctaccaatg agagctcagt tcaaggcgaa ccaccccttc 240
 ctgttcttta taaggcacac tcataccaac acgatcctat tctgtggcaa gcttgccctt 300
 cctaatcag atgggggttg gtaaggctca gagggtgcaga tgagggtgcag agacsaatct 360
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 tttgttaate atggaaaag gttagcttat gcagaaagcc tttctggctt tcttatctgt 540
 ggtgtctcat ctgagtgcg tccagtgaac tgatcaagtc aatgagtaaa attttaaggg 600
 attagatttt ctgacttgt atgtatctgt gagatcttga ataagtgacc tgacatctct 660
 gcttaaaaga aaccag 676

<210> 356

<211> 574

<212> DNA

<213> Homo sapien

<400> 356

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caagcttccc	atctgttagat	ctcagtgoot	atgagtatct	gacacotgtt	ccctctttca	180
gtctcttagg	gaggcttaaa	tctgtctcag	gtgtgctaag	agtgcacagcc	caaggkggtc	240
aaaagtccac	aaaactgcag	tctttgctgg	gatagtaagc	caagcagtgcc	ctggacagca	300
gagttctttt	cttggggcaac	agataaccag	acaggactct	aactcgtgctc	ttattcaaca	360
tccttctgtc	tctgcctaga	ctgggaataaa	aagccaatct	ctctcgtggc	acagggaagg	420
agatacaagc	togtttacat	gtgatagatc	taacaaaggc	atctacogaa	gtctggtctg	480
gatagacggc	acagggagct	cttaggtcag	ogctgctggg	tggaggacat	tcctgagtcg	540
agctttgcag	ctttctgaca	acagtacttt	cccc			574

<210> 357

<211> 393

<212> DNA

<213> Homo sapien

<400> 357

tttttttttt	tttttttttt	tttttttttt	tanagaatat	aratgtttta	tcactgkact	60
taatatggkg	kottgttcac	tatacttaaa	aatgcaccac	tcataatat	tttaattcagc	120
agccacacac	caaracttga	ttttatcaac	aaaaacccct	aatataaac	ggbaaaaaag	180
atagatataa	ttattccagt	tttttttaaa	cttaaaarat	attccattgc	cgatttaara	240
araarataag	tggtatatgg	aaagaagggc	attcaagcac	actaaaraaa	cttgaggkaa	300
gcataactctg	tacaaaatta	aaactgtcct	tttggcattt	taacaaattt	gcaacgktct	360
ttttttttct	tttctgtttt	tttttttttt	tac			393

<210> 358

<211> 630

<212> DNA

<213> Homo sapien

<400> 358

acagggtaaa	caggaggatc	cttgcctctca	eggagcttao	attctagcag	gaggacaata	60
ttaatgttta	taggaaaatg	atgagtttat	gacaaaggaa	gtagatagtg	ttttacaaga	120
gcataagata	gggaagctaa	tccagcacag	ggaggtcaca	gagacatccc	taagggaagt	180
gagtttcaac	tgagagaagc	aagtgcctaa	actgaaggat	gtgttgaaga	agaaggsgaga	240
gtagaacaaat	ttgggcagag	ggaaccttat	agaccttaag	gtgggaagggt	tcacaggact	300
gaaagagagc	tagaacagct	ggagccgttc	tcoggtgtaa	agaggagtca	aagagataag	360
attaagagtg	tgaagattaa	gatcttgggt	gcattcaggg	attggcactt	ctacagaaaa	420
tcactgaagg	gagtaagtgt	acattacttt	tcacttcagg	atggccattc	taactccagg	480
gggtagactg	gactaggtaa	gactggaggc	aggtagacct	cttctcaggg	ctgcgatagt	540
gaaagacaaa	aataagtggg	gaaattcagg	ggatagtgaa	aatcagtagg	acttaagtgg	600
caagccagag	gttcctccac	aacaaccagt				630

<210> 359

<211> 620

<212> DNA

<213> Homo sapien

<400> 359

acagcattcc	aaaatatata	totagagact	aarrgtaaat	gctctatagt	gaagaagtaa	60
taatttaaaa	atgctactaa	totagaaaat	ttataatcag	aaaaataaat	attcagggag	120
ctcaccagaa	gaataaagt	ctctgcragt	tattaaagga	ttactgctgg	tgaattaaat	180
atggcattcc	ccaagggaaa	tagagagatt	cttctggatt	atgttcaata	tttatttcaac	240

aggattaact	gttttaggaa	cagatataaa	gettcgcccac	ggaagagatg	gacaaagcac	300
aaagacaaca	tgatacctta	ggaagcaaca	ctaccctttc	aggcataaaa	tttgagagaa	360
tgcaacatta	tgtttcatga	ataatatgta	gaaagaaggt	ctgatgaaaa	tgacatcctt	420
aatgtaagat	aactttataa	gaattcttgg	tcaataaaaa	ttctttgaag	aaaacatcca	480
aatgtcattg	acttatcaaa	tactatcttg	gcataatacc	tatgaaggca	aaactaaaaa	540
aaacaaaagc	tcacacaaaa	caaaaaccatc	aacttatttt	gtattctata	acatacagag	600
ctgtaaagat	gtgacagtgt					620

<210> 360
 <211> 431
 <212> DNA
 <213> Homo sapien

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tactcatcat	ttttggccag	cagttgtttg	atcaccaaac	atcatgccag	aatactcagc	180
aaaccttctt	agctcttgag	aagtcaaaagt	ccgggggaat	ttattctctg	caattttaat	240
tggactcctt	atgtgagagc	agcggtacc	cagctggggt	ggtggagcga	acccgtcact	300
agtggacatg	cagtggcaga	gtccttggtg	accacctaga	ggaatacaca	ggcacatgtg	360
tgatgccaaag	ogtgacacct	gtagcactca	aatttgtctt	gtttctgtct	ttcgggtgtg	420
agattcttag	t					431

<210> 361
 <211> 351
 <212> DNA
 <213> Homo sapien

aacctgattt	ccgatcaaaa	gaatcatcat	ctttaccttg	acttttcagg	gaattactga	60
actttcttct	cagaagatag	ggcacagcca	ttgccctggc	ctcacttgaa	gggtctgcat	120
ttgggtcctc	tggctctctg	ccaagtctcc	cagccactcg	agggagaaat	atcgggaggt	180
ttgaacttct	ccggggcttt	cccgagggtc	tcaccgtgag	ccctgcggcc	ctcagggtctg	240
caatcctgga	ttcaatgtct	gaacctctgc	tctctgcttg	ctggacttct	gagggcgtca	300
ctgccactct	gtcctccagc	tctgacagct	ctcactctgt	ggtcctgttg	t	351

<210> 362
 <211> 463
 <212> DNA
 <213> Homo sapien

acttcacacg	gccataatgg	gtgcctcccg	tgagaatcca	agcacctttg	gactgogcga	60
tgtagatgag	ccggctgaag	atcttgccga	tgccgggctt	cagggcgaaag	ttcttggcgc	120
ccccggctac	agaaatgacc	aggttgggtg	ttttcagggt	ccagtgcctg	gtcagcagct	180
cgtaaaggat	ttccgcgtcc	gtgtccgagg	acagacgtat	atacttccct	ttcttcccca	240
gtgtctcaaa	ctgaatatcc	ccaaaggcgt	cggtaggaaa	ttccttgggtg	tgtttcttgt	300
agttccattt	ctcacttttg	ttgatctggg	tgcttcccat	gtgctgggtc	tgggcatagc	360
cacacttgca	cacattctcc	ctgataagca	ogatgggtgtg	gacaggaagg	aaggatttca	420
ttgagcctgc	ttatggaaac	tggtattgtt	agcttaata	gac		463

<210> 363
 <211> 653
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature

<222> (1)...(653)

<223> n - A,T,C or G

<400> 363

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tgggaggac	tacgcaagat	gggactgcgt	cctgggggtga	gacatcctct	ccttggagat	180
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ccaacagca	ccccccggaa	gtatgagtc	ctctrgggcc	tcggttcta	ccatgagaa	300
tagcaagatg	naagtgttga	gantcattgc	agagggttcag	aaaagagacc	entegtgact	360
ggcttgca	gttcatggag	gtgcagatg	aggccttggg	tgctctggat	gctgctgcag	420
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ntgggcccctg	gagctgggat	gacattgagt	ttgagctgct	gacctgggat	gaggaaggag	540
atcttgagga	tccttggtcc	agaattccat	ttaccttctg	ggccagatac	caccagaatg	600
ccgctccag	attccctcag	acctttgcgg	gtcccattat	tggtcstggg	ggc	653

<210> 364

<211> 401

<212> DNA

<213> Homo sapien

<400> 364

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acaaagccaa	tgaatgactc	taaaaacaat	atctacattt	aattggtttg	agacaataaa	120
aaaacaaggt	ggatagatct	agaattgtaa	catttttaaga	aaaccatagc	atttgacaga	180
tgagaaagct	caattataga	tgcaaggtta	taactaaact	actatagtag	taagaaata	240
catttcacac	ccttcataata	aattcactat	cttggtttga	ggcactccat	aaaatgtatc	300
acgtgcatag	taaatcttta	tatttgotat	ggcgttgca	tagaggactt	ggactgcaac	360
aagtggatgc	goggaaaatg	aaatcttctt	caatagccca	g		401

<210> 365

<211> 356

<212> DNA

<213> Homo sapien

<400> 365

ccagtgtcat	atttgggttt	aaaatttcaa	gaagggcact	tcaaatgggt	ttgcatttgc	60
atgtttcagt	gctagagcgt	aggaatagac	cctggcgctc	actgtgagat	gttcttcagc	120
taccagagca	tcaagtctct	gcagcaggtc	attcttgggt	aaagaaatga	cttcacaaaa	180
ctctccatcc	cctggctttg	gcttgggctt	tggtttttcg	gcacatctct	cgtaaatggt	240
gactgtcag	atgtgtatag	tacagtttga	caagcctggg	tccatacaga	ccgctggaga	300
acattoggca	atgtcccttt	tgtagccagt	ttcttcttcg	agctcccggg	gagcag	356

<210> 366

<211> 1851

<212> DNA

<213> Homo sapien

<400> 366

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tcaattctct	taagcctttg	tgaactcttc	tctgatgtca	gctttaagtc	ttgttctgga	180
ttgtgtttt	cagaagagat	ttttaacatc	tggttttctt	tgtagtccga	aagtaactgg	240
caaatatcat	gatgatgact	agaaacagca	tactctctgg	cgtctcttcc	agatcttgag	300
aagatacatc	aacattttgc	tcaagtagag	ggctgactat	acttgctgat	ccacaacata	360
cagcaagtat	gagagcagtt	cttccatata	tatccagcgc	atttaaatte	gctttttctt	420
tgattaaaaa	tttcccaact	tgcgtttttt	gtcatgtat	accaagtagc	agtgggtgtga	480
ggcatgtctt	gttttttgat	togatatcag	caccgtataa	gagcagtgct	ttggccatta	540

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gcacgagttt	tactactttt	gaattcccat	tggcagaggr	cagatgtaga	gcagtctctt	780
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tttgacaaaa	tccagccttc	ttgtatttat	tgctgcagtt	ctcagaggaa	atgcttctaa	1740
cttttcccca	tttagtatta	tgttgctgt	ggcttctgca	taggtgggtt	ttattacttt	1800
aaggtatgtc	ccttctatgc	ctgttttgc	gaggtgttta	attctcgtgc	c	1851

<210> 367

<211> 668

<212> DNA

<213> Homo sapien

<400> 367

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acctatata	agcagtgctt	tggccattaa	tttatcttct	atrttagaca	gcrtagtgya	180
gagtggtatt	tccatactca	tctggaatat	ttggatcagt	gccatgttcc	agcaacatta	240
acgcacattc	atcttctctg	cattgtacgg	ctgtcagta	ttagacccaa	aaacaaatta	300
catatcttag	gaattcaaaa	taacattcca	cagctttcac	caactagtta	tatttaagg	360
agaaaactca	tttttatgcc	atgtattgaa	atcaaaccca	cctcatgctg	atatagtctg	420
ctactgcata	cctttatcag	agctgtcttc	tttttgbtgt	caaggacatt	aagttgacat	480
cgtctgtcca	gcaggagttt	tactacttct	gaattcccat	tggcagaggg	cagatgtaga	540
gcagtcctat	gagagtgaga	agaactttta	ggaaattgta	gtgcactagc	tacagccata	600
gcaatgattc	atgtaactgc	aaacactgaa	tagcctgcta	ttactctgcc	ttcaaaaaaa	660
aaaaaana						668

<210> 368

<211> 1512

<212> DNA

<213> Homo sapien

<400> 368

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ttcaaacaga	ttggaaaccc	ggagttaoct	gctagtgtgt	gaaactgggt	ggtagacgog	180
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ggagaccacg	acgactctgc	tatgaagaca	ctcaggagca	agatgggcaa	gtgggtgcgc	420
cactgctccc	cctgctgcag	ggggagtggt	aagagcaacg	tgggcgcttc	tggagaccac	480
gacgagtctg	ctatgaagac	actcaggaac	aagatgggca	agtgggtgtg	ccactgcttc	540
ccctgctgca	ggggggagcrg	caagagcaag	gtgggtgctt	ggggagacta	cgtatgacagt	600

gccttcattgg	agccaggtta	ccacgtccgt	ggagaagatc	tggacaagct	ccacagagct	660
gcctgggtggg	gtaaagtccc	cagaaaggat	ctcatctgtc	tgctcagggg	cactgaogtg	720
aacaagaagg	acaagcaaaa	gaggactgct	ctacatctgg	cctctgccaa	tgggaattca	780
gaagtagtaa	aactcctgct	ggacagacga	tgtcaactta	atgtccttga	caacaaaaag	840
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gaacatggca	ctgatccaaa	tattccagat	gagtatggaa	ataccactct	rcactaygct	960
rtctayaatg	aagataaatt	aatggccaaa	gcactgctct	tataygggtg	tgatatcgaa	1020
tcqaaaaaca	aggatagat	ctactaattt	tatcttcaaa	atctgaaaat	gcattcattt	1080
taacattgac	gtgtgtaagg	gccagtcttc	cgtattttga	agctcaagca	taacttgaat	1140
gaaatatatt	tgaaatgacc	taattatctm	agactttatt	ttaaatatgt	ttattttcaa	1200
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gaaaaoactg	aatttgtaaa	aggtaatact	tactattttt	caatttttcc	ctcttaggat	1320
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actccaaagaa	aagttaaaaca	tgtttcagtg	aatagagatc	ctgctccctt	ggcaagttcc	1440
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tgatctctgt	cc					1512

<210> 369

<211> 1853

<212> DNA

<213> Homo sapien

<400> 369

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ttcaaacaga	ttggaaaccc	ggagttacct	gctagtgggt	gaaactgggt	ggtagacgcy	180
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<210> 370

<211> 2184

<212> DNA

<213> Homo sapien

<400> 370

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tttcctctga	gaactgcaac	aataaataca	aggatgctgg	attttgtcaa	atgocctttc	180
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ttattgaact	gectgtgtta	gacgggaaga	gctgggggtg	ttctcaggag	ccccggtgtg	300
ctgagggaag	ttcgggataa	cttgaggctg	catcactggg	gaagaaacac	aytccgtgce	360
gtggcgctga	tggctgagga	cagagcttca	gtgtggcttc	tctgcgactg	gcttcttcgg	420
ggagttcttc	cttcatagtt	catccataat	gtccagaggg	aaaattatat	tattttgtta	480
tggatgaaga	gtattacgtt	gtgcagatat	actgcagtg	cttcactctc	tgatgtgtga	540
ttgggtagg	tcacccatgt	tgcgcagat	gacatgat	cagtacctgt	gtctggtgga	600
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<210> 371

<211> 1855

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (1855)

<223> n = A,T,C or G

<400> 371

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gcgcgcgcgc	cataacgcgc	agactggcct	gtaacggctt	gcagcgccac	gcgcgcgcgc	180
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acatgtttca	gtgaatagag	atcctgtctc	tttggcaagt	tcctaataaaa	cagtaataga	1800
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<210> 372

<211> 1059

<212> DNA

<213> Homo sapien

<400> 372

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gogcttgrrg	agactmogat	gacagygcoo	tcctggagcc	caggtaccac	gtccgtggag	180
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agagatcctg	ctccttttggc	aagttcttaa	aaaacagttaa	tagatacagag	gtgatgcgcc	1020
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<210> 373

<211> 1155

<212> DNA

<213> Homo sapien

<400> 373

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gccagagagt	atgctgtttc	tagtcatcat	catgtaattt	gccagttact	ttctgactac	1080
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accagaaata	ataaa					1155

<210> 374

<211> 2000

<212> DNA

<213> Homo sapien

<400> 374

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 aaaaaa 2000

<210> 375
 <211> 2040
 <212> DNA
 <213> Homo sapien

<400> 375
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 gagctagaca caatgaaca tcagagccag ctcaaaaaa aaaaaa 2040

<210> 376
 <211> 329
 <212> PRT
 <213> Homo sapien

<400> 376
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 20 25 30
 Glu Tyr Thr Ile Val His Ala Ser Phe Ile Ser Cys Ile Ser Ser Ser
 35 40 45
 Leu Asp Gly Gln Gly Glu Arg Gln Glu Gln Arg Gly His Phe Trp Arg
 50 55 60

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Pro Gln Arg Leu Leu Cys Glu Asp Ala Trp Glu Gln Glu Val Gln Val
65          70          75          80
Val Leu Pro Leu Leu Pro Leu Leu Gln Gly Ser Gly Lys Ser Asn Val
          85          90          95
Val Ala Trp Gly Asp Tyr Asp Asp Ser Ala Phe Met Asp Pro Arg Tyr
          100          105          110
His Val His Gly Glu Asp Leu Asp Lys Leu His Arg Ala Ala Trp Trp
          115          120          125
Gly Lys Val Pro Arg Lys Asp Leu Ile Val Met Leu Arg Asp Thr Asp
          130          135          140
Val Asn Lys Arg Asp Lys Gln Lys Arg Thr Ala Leu His Leu Ala Ser
145          150          155          160
Ala Asn Gly Asn Ser Glu Val Val Lys Leu Val Leu Asp Arg Arg Cys
          165          170          175
Gln Leu Asn Val Leu Asp Asn Lys Lys Arg Thr Ala Leu Thr Lys Ala
          180          185          190
Val Gln Cys Gln Glu Asp Glu Cys Ala Leu Met Leu Leu Glu His Gly
          195          200          205
Thr Asp Pro Asn Ile Pro Asp Glu Tyr Gly Asn Thr Thr Leu His Tyr
          210          215          220
Ala Val Tyr Asn Glu Asp Lys Leu Met Ala Lys Ala Leu Leu Leu Tyr
225          230          235          240
Gly Ala Asp Ile Glu Ser Lys Asn Lys His Gly Leu Thr Pro Leu Leu
          245          250          255
Leu Gly Ile His Glu Gln Lys Gln Gln Val Val Lys Phe Leu Ile Lys
          260          265          270
Lys Lys Ala Asn Leu Asn Ala Leu Asp Arg Tyr Gly Arg Thr Ala Leu
          275          280          285
Ile Leu Ala Val Cys Cys Gly Ser Ala Ser Ile Val Ser Pro Leu Leu
          290          295          300
Glu Gln Asn Val Asp Val Ser Ser Gln Asp Leu Glu Arg Arg Pro Glu
305          310          315          320
Ser Met Leu Phe Leu Val Ile Ile Met
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<210> 377

<211> 148

<212> PRT

<213> Homo sapien

<220>

<221> VARIANT

<222> (1)...(148)

<223> Xaa = Any Amino Acid

<400> 377

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Asp Leu Ile Val Met Leu Arg Asp Thr Asp Val Asn Lys Xaa Asp Lys
          35          40          45
Gln Lys Arg Thr Ala Leu His Leu Ala Ser Ala Asn Gly Asn Ser Glu
          50          55          60
Val Val Lys Leu Xaa Leu Asp Arg Arg Cys Gln Leu Asn Val Leu Asp
65          70          75          80
Asn Lys Lys Arg Thr Ala Leu Xaa Lys Ala Val Gln Cys Gln Glu Asp
          85          90          95

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Glu Cys Ala Leu Met Leu Leu Glu His Gly Thr Asp Pro Asn Ile Pro
 100 105 120
 Asp Glu Tyr Gly Asn Thr Thr Leu His Tyr Ala Xaa Tyr Asn Glu Asp
 115 120 125
 Lys Leu Met Ala Lys Ala Leu Leu Leu Tyr Gly Ala Asp Ile Glu Ser
 130 135 140
 Lys Asn Lys Val
 145

<210> 378
 <211> 1719
 <212> PRT
 <213> Homo sapien

<400> 378
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 Pro Cys Cys Arg Glu Ser Gly Lys Ser Asn Val Gly Thr Ser Gly Asp
 35 40 45
 His Asp Asp Ser Ala Met Lys Thr Leu Arg Ser Lys Met Gly Lys Trp
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 Cys Arg His Cys Phe Pro Cys Cys Arg Gly Ser Gly Lys Ser Asn Val
 65 70 75 80
 Gly Ala Ser Gly Asp His Asp Asp Ser Ala Met Lys Thr Leu Arg Asn
 85 90 95
 Lys Met Gly Lys Trp Cys Cys His Cys Phe Pro Cys Cys Arg Gly Ser
 100 105 110
 Gly Lys Ser Lys Val Gly Ala Trp Gly Asp Tyr Asp Asp Ser Ala Phe
 115 120 125
 Met Glu Pro Arg Tyr His Val Arg Gly Glu Asp Leu Asp Lys Leu His
 130 135 140
 Arg Ala Ala Trp Trp Gly Lys Val Pro Arg Lys Asp Leu Ile Val Met
 145 150 155 160
 Leu Arg Asp Thr Asp Val Asn Lys Lys Asp Lys Gln Lys Arg Thr Ala
 165 170 175
 Leu His Leu Ala Ser Ala Asn Gly Asn Ser Glu Val Val Lys Leu Leu
 180 185 190
 Leu Asp Arg Arg Cys Gln Leu Asn Val Leu Asp Asn Lys Lys Arg Thr
 195 200 205
 Ala Leu Ile Lys Ala Val Gln Cys Gln Glu Asp Glu Cys Ala Leu Met
 210 215 220
 Leu Leu Glu His Gly Thr Asp Pro Asn Ile Pro Asp Glu Tyr Gly Asn
 225 230 235 240
 Thr Thr Leu His Tyr Ala Ile Tyr Asn Glu Asp Lys Leu Met Ala Lys
 245 250 255
 Ala Leu Leu Leu Tyr Gly Ala Asp Ile Glu Ser Lys Asn Lys His Gly
 260 265 270
 Leu Thr Pro Leu Leu Leu Gly Val His Glu Gln Lys Gln Gln Val Val
 275 280 285
 Lys Phe Leu Ile Lys Lys Lys Ala Asn Leu Asn Ala Leu Asp Arg Tyr
 290 295 300
 Gly Arg Thr Ala Leu Ile Leu Ala Val Cys Cys Gly Ser Ala Ser Ile
 305 310 315 320
 Val Ser Leu Leu Leu Glu Gln Asn Ile Asp Val Ser Ser Gln Asp Leu
 325 330 335
 Ser Gly Gln Thr Ala Arg Glu Tyr Ala Val Ser Ser His His His Val

805 810 815
 Leu Leu Glu Asn Leu Thr Asn Gly Val Thr Ala Gly Asn Gly Asp Asn
 820 825 830
 Gly Leu Ile Pro Gln Arg Lys Ser Arg Thr Pro Glu Asn Gln Gln Phe
 835 840 845
 Pro Asp Asn Glu Ser Glu Glu Tyr His Arg Ile Cys Glu Leu Val Ser
 850 855 860
 Asp Tyr Lys Glu Lys Gln Met Pro Lys Tyr Ser Ser Glu Asn Ser Asn
 865 870 875 880
 Pro Glu Gln Asp Leu Lys Leu Thr Ser Glu Glu Glu Ser Gln Arg Leu
 885 890 895
 Glu Gly Ser Glu Asn Gly Gln Pro Glu Leu Glu Asn Phe Met Ala Ile
 900 905 910
 Glu Glu Met Lys Lys His Gly Ser Thr His Val Gly Phe Pro Glu Asn
 915 920 925
 Leu Thr Asn Gly Ala Thr Ala Gly Asn Gly Asp Asp Gly Leu Ile Pro
 930 935 940
 Pro Arg Lys Ser Arg Thr Pro Glu Ser Gln Gln Phe Pro Asp Thr Glu
 945 950 955 960
 Asn Glu Glu Tyr His Ser Asp Glu Gln Asn Asp Thr Gln Lys Gln Phe
 965 970 975
 Cys Glu Glu Gln Asn Thr Gly Ile Leu His Asp Glu Ile Leu Ile His
 980 985 990
 Glu Glu Lys Gln Ile Glu Val Val Glu Lys Met Asn Ser Glu Leu Ser
 995 1000 1005
 Leu Ser Cys Lys Lys Glu Lys Asp Ile Leu His Glu Asn Ser Thr Leu
 1010 1015 1020
 Arg Glu Glu Ile Ala Met Leu Arg Leu Glu Leu Asp Thr Met Lys His
 1025 1030 1035 1040
 Gln Ser Gln Leu Pro Arg Thr His Met Val Val Glu Val Asp Ser Met
 1045 1050 1055
 Pro Ala Ala Ser Ser Val Lys Lys Pro Phe Gly Leu Arg Ser Lys Met
 1060 1065 1070
 Gly Lys Trp Cys Cys Arg Cys Phe Pro Cys Cys Arg Glu Ser Gly Lys
 1075 1080 1085
 Ser Asn Val Gly Thr Ser Gly Asp His Asp Asp Ser Ala Met Lys Thr
 1090 1095 1100
 Leu Arg Ser Lys Met Gly Lys Trp Cys Arg His Cys Phe Pro Cys Cys
 1105 1110 1115 1120
 Arg Gly Ser Gly Lys Ser Asn Val Gly Ala Ser Gly Asp His Asp Asp
 1125 1130 1135
 Ser Ala Met Lys Thr Leu Arg Asn Lys Met Gly Lys Trp Cys Cys His
 1140 1145 1150
 Cys Phe Pro Cys Cys Arg Gly Ser Gly Lys Ser Lys Val Gly Ala Trp
 1155 1160 1165
 Gly Asp Tyr Asp Asp Ser Ala Phe Met Glu Pro Arg Tyr His Val Arg
 1170 1175 1180
 Gly Glu Asp Leu Asp Lys Leu His Arg Ala Ala Trp Trp Gly Lys Val
 1185 1190 1195 1200
 Pro Arg Lys Asp Leu Ile Val Met Leu Arg Asp Thr Asp Val Asn Lys
 1205 1210 1215
 Lys Asp Lys Gln Lys Arg Thr Ala Leu His Leu Ala Ser Ala Asn Gly
 1220 1225 1230
 Asn Ser Glu Val Val Lys Leu Leu Asp Arg Arg Cys Gln Leu Asn
 1235 1240 1245
 Val Leu Asp Asn Lys Lys Arg Thr Ala Leu Ile Lys Ala Val Gln Cys
 1250 1255 1260
 Gln Glu Asp Glu Cys Ala Leu Met Leu Leu Glu His Gly Thr Asp Pro

1265 1270 1275 1280
 Asn Ile Pro Asp Glu Tyr Gly Asn Thr Thr Leu His Tyr Ala Ile Tyr
 1285 1290 1295
 Asn Glu Asp Lys Leu Met Ala Lys Ala Leu Leu Leu Tyr Gly Ala Asp
 1300 1305 1310
 Ile Glu Ser Lys Asn Lys His Gly Leu Thr Pro Leu Leu Leu Gly Val
 1315 1320 1325
 His Glu Gln Lys Gln Gln Val Val Lys Phe Leu Ile Lys Lys Lys Ala
 1330 1335 1340
 Asn Leu Asn Ala Leu Asp Arg Tyr Gly Arg Thr Ala Leu Ile Leu Ala
 1345 1350 1355 1360
 Val Cys Cys Gly Ser Ala Ser Ile Val Ser Leu Leu Leu Glu Gln Asn
 1365 1370 1375
 Ile Asp Val Ser Ser Gln Asp Leu Ser Gly Gln Thr Ala Arg Glu Tyr
 1380 1385 1390
 Ala Val Ser Ser His His His Val Ile Cys Gln Leu Leu Ser Asp Tyr
 1395 1400 1405
 Lys Glu Lys Gln Met Leu Lys Ile Ser Ser Glu Asn Ser Asn Pro Glu
 1410 1415 1420
 Gln Asp Leu Lys Leu Thr Ser Glu Glu Glu Ser Gln Arg Phe Lys Gly
 1425 1430 1435 1440
 Ser Glu Asn Ser Gln Pro Glu Lys Met Ser Gln Glu Pro Glu Ile Asn
 1445 1450 1455
 Lys Asp Gly Asp Arg Glu Val Glu Glu Glu Met Lys Lys His Glu Ser
 1460 1465 1470
 Asn Asn Val Gly Leu Leu Glu Asn Leu Thr Asn Gly Val Thr Ala Gly
 1475 1480 1485
 Asn Gly Asp Asn Gly Leu Ile Pro Gln Arg Lys Ser Arg Thr Pro Glu
 1490 1495 1500
 Asn Gln Gln Phe Pro Asp Asn Glu Ser Glu Tyr His Arg Ile Cys
 1505 1510 1515 1520
 Glu Leu Val Ser Asp Tyr Lys Glu Lys Gln Met Pro Lys Tyr Ser Ser
 1525 1530 1535
 Glu Asn Ser Asn Pro Glu Gln Asp Leu Lys Leu Thr Ser Glu Gln Glu
 1540 1545 1550
 Ser Gln Arg Leu Glu Gly Ser Glu Asn Gly Gln Pro Glu Lys Arg Ser
 1555 1560 1565
 Gln Glu Pro Glu Ile Asn Lys Asp Gly Asp Arg Glu Leu Glu Asn Phe
 1570 1575 1580
 Met Ala Ile Glu Glu Met Lys Lys His Gly Ser Thr His Val Gly Phe
 1585 1590 1595 1600
 Pro Glu Asn Leu Thr Asn Gly Ala Thr Ala Gly Asn Gly Asp Asp Gly
 1605 1610 1615
 Leu Ile Pro Pro Arg Lys Ser Arg Thr Pro Glu Ser Gln Gln Phe Pro
 1620 1625 1630
 Asp Thr Glu Asn Glu Glu Tyr His Ser Asp Glu Gln Asn Asp Thr Gln
 1635 1640 1645
 Lys Gln Phe Cys Glu Glu Gln Asn Thr Gly Ile Leu His Asp Glu Ile
 1650 1655 1660
 Leu Ile His Glu Glu Lys Gln Ile Glu Val Val Glu Lys Met Asn Ser
 1665 1670 1675 1680
 Glu Leu Ser Leu Ser Cys Lys Lys Glu Lys Asp Ile Leu His Glu Asn
 1685 1690 1695
 Ser Thr Leu Arg Glu Glu Ile Ala Met Leu Arg Leu Glu Leu Asp Thr
 1700 1705 1710
 Met Lys His Gln Ser Gln Leu
 1715

<210> 379

<211> 656

<212> PRT

<213> Homo sapien

<400> 379

Met Val Val Glu Val Asp Ser Met Pro Ala Ala Ser Ser Val Lys Lys
 1 5 10 15
 Pro Phe Gly Leu Arg Ser Lys Met Gly Lys Trp Cys Cys Arg Cys Phe
 20 25 30
 Pro Cys Cys Arg Glu Ser Gly Lys Ser Asn Val Gly Thr Ser Gly Asp
 35 40 45
 His Asp Asp Ser Ala Met Lys Thr Leu Arg Ser Lys Met Gly Lys Trp
 50 55 60
 Cys Arg His Cys Phe Pro Cys Cys Arg Gly Ser Gly Lys Ser Asn Val
 65 70 75 80
 Gly Ala Ser Gly Asp His Asp Asp Ser Ala Met Lys Thr Leu Arg Asn
 85 90 95
 Lys Met Gly Lys Trp Cys Cys His Cys Phe Pro Cys Cys Arg Gly Ser
 100 105 110
 Gly Lys Ser Lys Val Gly Ala Trp Gly Asp Tyr Asp Asp Ser Ala Phe
 115 120 125
 Met Glu Pro Arg Tyr His Val Arg Gly Glu Asp Leu Asp Lys Leu His
 130 135 140
 Arg Ala Ala Trp Trp Gly Lys Val Pro Arg Lys Asp Leu Ile Val Met
 145 150 155 160
 Leu Arg Asp Thr Asp Val Asn Lys Lys Asp Lys Gln Lys Arg Thr Ala
 165 170 175
 Leu His Leu Ala Ser Ala Asn Gly Asn Ser Glu Val Val Lys Leu Leu
 180 185 190
 Leu Asp Arg Arg Cys Gln Leu Asn Val Leu Asp Asn Lys Lys Arg Thr
 195 200 205
 Ala Leu Ile Lys Ala Val Gln Cys Gln Glu Asp Glu Cys Ala Leu Met
 210 215 220
 Leu Leu Glu His Gly Thr Asp Pro Asn Ile Pro Asp Glu Tyr Gly Asn
 225 230 235 240
 Thr Thr Leu His Tyr Ala Ile Tyr Asn Glu Asp Lys Leu Met Ala Lys
 245 250 255
 Ala Leu Leu Leu Tyr Gly Ala Asp Ile Glu Ser Lys Asn Lys His Gly
 260 265 270
 Leu Thr Pro Leu Leu Leu Gly Val His Glu Gln Lys Gln Gln Val Val
 275 280 285
 Lys Phe Leu Ile Lys Lys Lys Ala Asn Leu Asn Ala Leu Asp Arg Tyr
 290 295 300
 Gly Arg Thr Ala Leu Ile Leu Ala Val Cys Cys Gly Ser Ala Ser Ile
 305 310 315 320
 Val Ser Leu Leu Leu Glu Gln Asn Ile Asp Val Ser Ser Gln Asp Leu
 325 330 335
 Ser Gly Gln Thr Ala Arg Glu Tyr Ala Val Ser Ser His His Val
 340 345 350
 Ile Cys Gln Leu Leu Ser Asp Tyr Lys Glu Lys Gln Met Leu Lys Ile
 355 360 365
 Ser Ser Glu Asn Ser Asn Pro Glu Gln Asp Leu Lys Leu Thr Ser Glu
 370 375 380
 Glu Glu Ser Gln Arg Phe Lys Gly Ser Glu Asn Ser Gln Pro Glu Lys
 385 390 395 400
 Met Ser Gln Glu Pro Glu Ile Asn Lys Asp Gly Asp Arg Glu Val Glu
 405 410 415

Glu Glu Met Lys Lys His Glu Ser Asn Asn Val Gly Leu Leu Glu Asn
 420 425 430
 Leu Thr Asn Gly Val Thr Ala Gly Asn Gly Asp Asn Gly Leu Ile Pro
 435 440 445
 Gln Arg Lys Ser Arg Thr Pro Glu Asn Gln Gln Phe Pro Asp Asn Glu
 450 455 460
 Ser Glu Glu Tyr His Arg Ile Cys Glu Leu Val Ser Asp Tyr Lys Glu
 465 470 475 480
 Lys Gln Met Pro Lys Tyr Ser Ser Glu Asn Ser Asn Pro Glu Gln Asp
 485 490 495
 Leu Lys Leu Thr Ser Glu Glu Glu Ser Gln Arg Leu Glu Gly Ser Glu
 500 505 510
 Asn Gly Gln Pro Glu Leu Glu Asn Phe Met Ala Ile Glu Glu Met Lys
 515 520 525
 Lys His Gly Ser Thr His Val Gly Phe Pro Glu Asn Leu Thr Asn Gly
 530 535 540
 Ala Thr Ala Gly Asn Gly Asp Asp Gly Leu Ile Pro Pro Arg Lys Ser
 545 550 555 560
 Arg Thr Pro Glu Ser Gln Gln Phe Pro Asp Thr Glu Asn Glu Glu Tyr
 565 570 575
 His Ser Asp Glu Gln Asn Asp Thr Gln Lys Gln Phe Cys Glu Glu Gln
 580 585 590
 Asn Thr Gly Ile Leu His Asp Glu Ile Leu Ile His Glu Glu Lys Gln
 595 600 605
 Ile Glu Val Val Glu Lys Met Asn Ser Glu Leu Ser Leu Ser Cys Lys
 610 615 620
 Lys Glu Lys Asp Ile Leu His Glu Asn Ser Thr Leu Arg Glu Glu Ile
 625 630 635 640
 Ala Met Leu Arg Leu Glu Leu Asp Thr Met Lys His Gln Ser Gln Leu
 645 650 655

<210> 380

<211> 671

<212> PRT

<213> Homo sapien

<400> 380

Met Val Val Glu Val Asp Ser Met Pro Ala Ala Ser Ser Val Lys Lys
 1 5 10 15
 Pro Phe Gly Leu Arg Ser Lys Met Gly Lys Trp Cys Cys Arg Cys Phe
 20 25 30
 Pro Cys Cys Arg Glu Ser Gly Lys Ser Asn Val Gly Thr Ser Gly Asp
 35 40 45
 His Asp Asp Ser Ala Met Lys Thr Leu Arg Ser Lys Met Gly Lys Trp
 50 55 60
 Cys Arg His Cys Phe Pro Cys Cys Arg Gly Ser Gly Lys Ser Asn Val
 65 70 75 80
 Gly Ala Ser Gly Asp His Asp Asp Ser Ala Met Lys Thr Leu Arg Asn
 85 90 95
 Lys Met Gly Lys Trp Cys Cys His Cys Phe Pro Cys Cys Arg Gly Ser
 100 105 110
 Gly Lys Ser Lys Val Gly Ala Trp Gly Asp Tyr Asp Asp Ser Ala Phe
 115 120 125
 Met Glu Pro Arg Tyr His Val Arg Gly Glu Asp Leu Asp Lys Leu His
 130 135 140
 Arg Ala Ala Trp Trp Gly Lys Val Pro Arg Lys Asp Leu Ile Val Met
 145 150 155 160
 Leu Arg Asp Thr Asp Val Asn Lys Lys Asp Lys Gln Lys Arg Thr Ala

165 170 175
 Leu His Leu Ala Ser Ala Asn Gly Asn Ser Glu Val Val Lys Leu Leu
 180 185 190
 Leu Asp Arg Arg Cys Gln Leu Asn Val Leu Asp Asn Lys Lys Arg Thr
 195 200 205
 Ala Leu Ile Lys Ala Val Gln Cys Gln Glu Asp Glu Cys Ala Leu Met
 210 215 220
 Leu Leu Glu His Gly Thr Asp Pro Asn Ile Pro Asp Glu Tyr Gly Asn
 225 230 235 240
 Thr Thr Leu His Tyr Ala Ile Tyr Asn Glu Asp Lys Leu Met Ala Lys
 245 250 255
 Ala Leu Leu Leu Tyr Gly Ala Asp Ile Glu Ser Lys Asn Lys His Gly
 260 265 270
 Leu Thr Pro Leu Leu Leu Gly Val His Glu Gln Lys Gln Gln Val Val
 275 280 285
 Lys Phe Leu Ile Lys Lys Lys Ala Asn Leu Asn Ala Leu Asp Arg Tyr
 290 295 300
 Gly Arg Thr Ala Leu Ile Leu Ala Val Cys Cys Gly Ser Ala Ser Ile
 305 310 315 320
 Val Ser Leu Leu Leu Glu Gln Asn Ile Asp Val Ser Ser Gln Asp Leu
 325 330 335
 Ser Gly Gln Thr Ala Arg Glu Tyr Ala Val Ser Ser His His His Val
 340 345 350
 Ile Cys Gln Leu Leu Ser Asp Tyr Lys Glu Lys Gln Met Leu Lys Ile
 355 360 365
 Ser Ser Glu Asn Ser Asn Pro Glu Gln Asp Leu Lys Leu Thr Ser Glu
 370 375 380
 Glu Glu Ser Gln Arg Phe Lys Gly Ser Glu Asn Ser Gln Pro Glu Lys
 385 390 395 400
 Met Ser Gln Glu Pro Glu Ile Asn Lys Asp Gly Asp Arg Glu Val Glu
 405 410 415
 Glu Glu Met Lys Lys His Glu Ser Asn Asn Val Gly Leu Leu Glu Asn
 420 425 430
 Leu Thr Asn Gly Val Thr Ala Gly Asn Gly Asp Asn Gly Leu Ile Pro
 435 440 445
 Gln Arg Lys Ser Arg Thr Pro Glu Asn Gln Gln Phe Pro Asp Asn Glu
 450 455 460
 Ser Glu Glu Tyr His Arg Ile Cys Glu Leu Val Ser Asp Tyr Lys Glu
 465 470 475 480
 Lys Gln Met Pro Lys Tyr Ser Ser Glu Asn Ser Asn Pro Glu Gln Asp
 485 490 495
 Leu Lys Leu Thr Ser Glu Glu Glu Ser Gln Arg Leu Glu Gly Ser Glu
 500 505 510
 Asn Gly Gln Pro Glu Lys Arg Ser Gln Glu Pro Glu Ile Asn Lys Asp
 515 520 525
 Gly Asp Arg Glu Leu Glu Asn Phe Met Ala Ile Glu Glu Met Lys Lys
 530 535 540
 His Gly Ser Thr His Val Gly Phe Pro Glu Asn Leu Thr Asn Gly Ala
 545 550 555 560
 Thr Ala Gly Asn Gly Asp Asp Gly Leu Ile Pro Pro Arg Lys Ser Arg
 565 570 575
 Thr Pro Glu Ser Gln Gln Phe Pro Asp Thr Glu Asn Glu Glu Tyr His
 580 585 590
 Ser Asp Glu Gln Asn Asp Thr Gln Lys Gln Phe Cys Glu Glu Gln Asn
 595 600 605
 Thr Gly Ile Leu His Asp Glu Ile Leu Ile His Glu Glu Lys Gln Ile
 610 615 620
 Glu Val Val Glu Lys Met Asn Ser Glu Leu Ser Leu Ser Cys Lys Lys


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tttactaagt tttcagactg gcaggaagtc aaacctatta ggctgaggac cttgtggagt 2100
gtagctgata cagctgatag aggaactagc cagggtgggg cctttccctt tggatggggg 2160
gcataatcga cagttattct ctccaagtgg agacttaagg acagcatata atttccctg 2220
caaggatgta tgataatatg tacaagtaaa ttccaactga ggaagctcac ctgaccccta 2280
gtgtccaggg tttttactgg gggctctgtg gacgagtatg gactacttga ataattgacc 2340
tgaagtctct agacctgagg ttccttagag ttcaaacaga tacagcatgg tccagagtcc 2400
cagatgtaca aaaacagggg ttcattcaca atcccatctt tagcatgaag ggtctggcat 2460
ggcccaaggc cccaagtata tcaaggcact tgggcagaac atgccaaagg atcaaatgtc 2520
atctcccagg agttattcaa gggtagagcc ttactttgg atgtacaggc ttgagcagt 2580
gcagggtctc tgagtcaacc ttttattgtc caggggatga gggaaaggga gaggatgagg 2640
aagcccccct ggggattctg tttggctctg tgatcagggt gtctatgggg ctatccctac 2700
aaagaagaat ccagaaatag gggcacattg aggaatgata ctgagcccaa agagcattoa 2760
atcattgttt tatttgcctt cttttcacac cattggctgag ggagggatta ccacctggg 2820
gttatgaaga tggttgaaca cccacacacat agcaccggag atatgagatc aacagtctct 2880
tagccataga gattcacagc ccagagcagg aggaagctgc acaccatgca ggtatgacatg 2940
ggggatgccc tggggattgg tgtgaagaag caaggactgt tagaggcagg ctttatagta 3000
acaagacggg ggggcaaaact ctgatttccg tgggggaatg tcatggtctt gctttactaa 3060
gtttttagac tggcaggtag tgaactcat taggctgaga acctgttgg atgcagctga 3120
cccagctgat agaggaagta gccagggtgg agcctttccc agtgggtgtg ggcataatct 3180
ggcaagattt tgtggcactc ctggttacag atactggggc agcaaatasa actgaatctt 3240
gttttcagac cttaaaaaaa aaaaaaaaaa aaagtttt 3279

```

<210> 383

<211> 154

<212> PRT

<213> Homo sapiens

<400> 383

```

Met Ala Gly Val Arg Asp Gln Gly Gln Gly Ala Arg Trp Pro His Thr
      5                                10                                15

```

```

Gly Lys Arg Gly Pro Leu Leu Gln Gly Leu Thr Trp Ala Thr Gly Gly
      20                                25                                30

```

```

His Cys Phe Ser Ser Glu Glu Ser Gly Ala Val Asp Gly Ala Gly Gln
      35                                40                                45

```

```

Lys Lys Asp Arg Ala Trp Leu Arg Cys Pro Glu Ala Val Ala Gly Phe
      50                                55                                60

```

```

Pro Leu Gly Ser Asp Cys Arg Glu Gly Gly Arg Gln Gly Cys Gly Gly
      65                                70                                75                                80

```

```

Ser Asp Asp Glu Asp Asp Leu Gly Val Ala Pro Gly Leu Ala Pro Ala
      85                                90                                95

```

```

Trp Ala Leu Thr Gln Pro Pro Ser Gln Ser Pro Gly Pro Gln Ser Leu
      100                                105                                110

```

```

Pro Ser Thr Pro Ser Ser Ile Trp Pro Gln Trp Val Ile Leu Ile Thr
      115                                120                                125

```

```

Glu Leu Thr Ile Pro Ser Pro Ala His Gly Pro Pro Trp Leu Pro Asn
      130                                135                                140

```

```

Ala Leu Glu Arg Gly His Leu Val Arg Glu
      145                                150

```

<210> 384
 <211> 557
 <212> DNA
 <213> Homo sapiens

<400> 384
 ggatcctcta gagcgccgcg ctactactac taaattcgcg gccgcgtcga cgaagagag 60
 aaagatgtgt tttgttttgg actctctgtg gtcccttcca atgctgtggg ttcccaacca 120
 ggggaagggt cctttttgca ttgccaagtg ccataacct gagcactact ctaccatggt 180
 tctgcctcct ggccaagcag gctgggttgc aagaatgaaa tgaatgatto tacagctagg 240
 acttaacctt gaaatggaaa gtcttgcaat cccatttgca ggatccgtct gtgcacatgc 300
 ctctgtagag agcagcattc ccagggaact tggaaacagt tggcactgta aggtgcttgc 360
 tcccgaagac acatcctaaa aggtgttgta atggtgaaaa cgtcttctt ctttatttgc 420
 ccttcttatt tatgtgaaca actgtttgtc tttttttgta ctttttttaa actgtaaagt 480
 tcaattgtga aaatgaatat catgcaataa aattatgaga ttttttttcc aaagtacaaa 540
 aaaaaaaaaa aaaaaaaa 557

<210> 385
 <211> 337
 <212> DNA
 <213> Homo sapiens

<400> 385
 ttcccagggt atgtgcgagg gaagacacat ttaactatcct tgatggggct gattccttta 60
 gtttctctag cagcagatgg gttaggagga agtgacccaa gtgggttgact cctatgtgca 120
 tctcaaagcc atctgctgtc ttogagtacg gacacatcat cactcctgca ttgttgatca 180
 aaacgtggag gtgcttttcc ttagctaaag agccctkagc aaaagctcga atagacttag 240
 kalcagacag gtccagtttc cgcaccaaca cctgctggtt ccctgtogtg gtctggatct 300
 ctttgccac caattccccc tttccacat ccggca 337

<210> 386
 <211> 300
 <212> DNA
 <213> Homo sapiens

<400> 386
 gggcccgcta cgggcccagg ccccgctctg cgagtctctc tccccgggtg cctgcccga 60
 gcccgctcgg ccagaggggt gggcgogggg ctgctctctc cggctggcgg ctgtaactca 120
 ggcaccttgg ccgaaggct ctgcaaggga cccaccgacc ccagccgagg cggcggcggc 180
 gcggactttg cccggtgtgt gggcgaggag ggactgcgtg tccgoggaag ggcagogaag 240
 atgttagcct tggctgacag gaccgtggac cgatcccagg gctgtggtgt aacctcagcc 300

<210> 387
 <211> 537
 <212> DNA
 <213> Homo sapiens

<400> 387
 gggccgagtc gggcaccaag ggactctttg caggcttctt tctcgggato atcaaggctg 60
 cccctctctg tgccatcatg atcagcaact atgagttogg caaaagcttc ttccagaggc 120
 tgaaccaggga ccggtctctg gggcgctgaa aggggcaagg aggcaaggac ccgtctctc 180
 ccaoggatgg ggagagggca ggaggagacc cagccaagtg ccttttcttc agcactgagg 240
 gagggggctt gtttcccttc cctcccggcg acaagctcca gggcagggtt gtccctctgg 300
 ggggcccagc acttctctag acacaaattc tttctgctgc tccagtctgt gggatcatca 360
 cttaaccacc cccaagttc aagaccaaact cttccagctg cccctcttgt gtttccctgt 420
 gtttgcctga gctgggcatg tctccaggaa ccaagaagcc ctccagcctg tgtagtctcc 480
 ctgacccctg ttaattcctt aagctctaaag atgatgaact tcaaaaaaaa aaaaaaaa 537

<210> 388
 <211> 520
 <212> DNA
 <213> Homo sapiens

<400> 388
 aggataattt ttaaaccaat caaatgaaaa aaacaaacaa acaaaaaagg aaatgtcatg 60
 tgaggttaaa ccagtttgca ttcccttaat gtggaaaaag taagaggact actcagcaact 120
 gtttgaaagt tgcctcttct acagcttctg agaatttgtt tatttcactt gccaaagtga 180
 ggaccccttc ccaaacatgc ccagctccac ccctaagcat ggtcccttgt caccaggcaa 240
 ccaggaaact gctacttgtg gacctcaca gagaccagga gggtttgggt agctcacagg 300
 acttccccca cccagaaga ttagcatccc ataactagact cataactcaac tcaactagge 360
 tcataactcaa ttgatggta ttagacaatt ccatttcttt ctgggtatta taaacagaaa 420
 atcttctctc ttctcattac cagtaaaagg tcttggtatc tttctgttgg aatgatttct 480
 atgaacttgt cttattttta tgggtgggtt ttttctggc 520

<210> 389
 <211> 365
 <212> DNA
 <213> Homo sapiens

<400> 389
 cgttgcccca gtttgacaga aggaaaggcg gagcttattc aaagtctaga gggagtggag 60
 gagttaagga tggatttcag atctgcctgg ttccagccgc agtgtgcctt ctgctcccc 120
 aacgaatttc caaatcaatc caccagcgcc ttccagctca ggcgtctctg aagcgtcttg 180
 aagcctatgg ccagctgtct ttgtgttccc tctcaccgc ctglectcac agctgagact 240
 cccaggaaac cttcagacta ctttctctct ccttcagcaa ggggcgttgc ccacattctc 300
 tgagggtcag tggaaagaacc tagactccca ttgctagagg tagaaagggg aagggtgctg 360
 gggag 365

<210> 390
 <211> 221
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> [1]... (221)
 <223> n = A,T,C or G

<400> 390
 tgcctctcca tccctggccc gacttctctg tcaggaaagt ggggatggac cccatctgca 60
 tacaaggntt ctcatgggtg tggaaacatc ctgcttgogg ttccaggaag gcctctggct 120
 gctctangag tctganenga ntcgttgccc centntgaca naaggaaaagg cggagcttat 180
 tcaaagtcta gagggagtgg aggagttaag gctggatttc a 221

<210> 391
 <211> 325
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> [1]... (325)
 <223> n = A,T,C or G

<400> 391

```

tggagcaggt cccgaggcct cccatagagcc tggggccgac tctgtgncga tgcangcttt 60
ctctcgccgc cagcctggag ctgctcctgg catctacca caatcagnog aggcgagcag 120
tagccagggc actgctgcca acagccagtc cnnataccat catgtnaccc ggtgngctct 180
naanttngat ntccanagcc ctaccocatn tagttctgct cccccacgg ntaccagccc 240
cactgcccag gaatcctaca gccagtaacc tgtcccgagc tctctaccta ccagtaagat 300
gagacctccg gctactacta tgacc                                     325

```

<210> 392
 <211> 277
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)...(277)
 <223> n = A,T,C or G

```

<400> 392
atattgttta actccttccct ttatatcttt taacattttc atggngaang gttcacatct 60
agtctcaact ngscnagngn ctccactctg agtctcttcc ccggcctgmn ccagtngnaa 120
antaccanga accgncatgn cttanaaact nccctggttn tgggttnttc aatgactgca 180
tgcagtgca caccctgtcc actacgtgat gctgtaggat taaagtctca cagtgggcgg 240
ctgaggatcc agcgcctcgt cctgtgttgc tggggaa                                     277

```

<210> 393
 <211> 566
 <212> DNA
 <213> Homo sapiens

```

<400> 393
actagtccag tgtggtggaa ttgcggcccg cgtcgacgga caggtcagct gtctggctca 60
gtgatctaca ttctgaagtt gtctgaaat gtcttcatga tttaattcag cctaaacgtt 120
ttgcggggaa cactgcagag accatgctgt gactttccaa ccttagccca tctgcgggca 180
gagaaggtct agtttgtcca tcagcattat catgatatca ggaactggtta cttggttaag 240
gaggggtcta ggagatctgt ccccttttaga gaacacctac ttataatgaa gtatttggga 300
gggtggtttt caaaagtaga aatgtcctgt attccgatga tcatcctgta aacattttat 360
cattkattaa tcatccctgc cgtgtcttat tatttatctc atatctctac gctgggaaact 420
ttctgctcca atgtttactg tgcctttgtt ttgtctagtt tgtgttgttg aaaaaaaa 480
cattctctgc ctgagtttta atttttgtcc aaagttattt caatctatcc aattaaaagc 540
ttttgcttat caaaaaaaaa aaaaaa                                     566

```

<210> 394
 <211> 384
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)...(384)
 <223> n = A,T,C or G

```

<400> 394
gaacatacat gtcccggcac ctgagctgca gtctgacatc atcgccatca cgggctctgc 60
tgcaaatng gaccgggcca aggtctggact gctggaagct gtgaaggagc tacaggccna 120
gcaggaggac ogggctttaa ggagttttaa gctgagtgtc actgtagacc ccaaatacca 180
tcccagatt atcgggagaa agggggcagt aattacccaa atcgggttgg agcatgacgt 240
gaacatccag tttcctgata aggacgatgg gaaccagccc caggacccaa ttaccatcac 300
agggtacgaa aagaacacag aagctgccag ggatgctata ctgagaattg tgggtgaact 360

```

tgagcagatg gtttctgagg acgt

394

<210> 395

<211> 399

<212> DNA

<213> Homo sapiens

<400> 395

```
ggcaaaactg tctgacctca ataagacctc gcagatocaa ggtcaagtat cagaagtgac 60
tctgaccttg gactccaaaga cctacatcaa cagcctgggt atattagatg atgagccagt 120
tatcagaggt ttcattcattg cggaaaattgt ggagtctaaag gaaatcattgg cctctgaagt 180
attcagctct ttcagttacc ctgagttctc tataggttg cctaaccacag gcagaattgg 240
ccagctactt gtctgcaatt gtatcttcaa gaataccctg gccatccctt tgactgacgt 300
caagttctct ttggaagcc tgggcattct cttactacag acctctgacc atgggacggg 360
gcagcctggg gagaccatcc aatcccaat aaatgcac
```

399

<210> 396

<211> 403

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(403)

<223> n = A,T,C or G

<400> 396

```
tggagttntc agtgcaaca agccataaag cttcagtagc aaattactgt ctcacagaaa 60
gacattttca acttctgtct cagctgctga taaaacaaat catgtgttta gcttgactcc 120
agacaaggac aacctgttcc ttcataactc tctagagaaa aaaaggagtt gttagtagat 180
actaaaaaaa gtggatgaat aatctggata tttttcttaa aaagattcct tgaacacat 240
taggaaaaatg gagggcctta tgatcagaat gctagaatta gtccattgtg ctgaagcagg 300
gttttagggg gagagtgagg gataaaagaa ggaaaaaaag aagagtgaga aaacctat 360
atcaaagcag gtgctatcac tcaatgttag gccctgtctc ttt
```

403

<210> 397

<211> 100

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(100)

<223> n = A,T,C or G

<400> 397

```
actagtnacg tctggtgaa ttgggggag cgtgcacctt naanccatct ctatagcaaa 60
tccatcccg ctctgtgttg gtnacagaat gactgacaaa
```

100

<210> 398

<211> 278

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(278)

<223> n = A,T,C or G

```

<400> 398
gogggcgcgt cgacagcagt tccgccagcg ctgcgccttg ggtgggggatg tgctgcacgc 60
ccacctggac atctggaagt cagcggcctg gatgaaagag cggacttcac ctggggcgat 120
tcaactactgt gcctcgacca gtgaggagag ctggaccgac agcgaggtag actcatcatg 180
ctccgggcag cccatccacc tgtggcagtt cctcaaggag ttgctactca agccccacag 240
ctatggccgc ttcattangt ggctcaacaa ggagaagg 278

```

```

<210> 399
<211> 298
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc_feature
<222> (1)...(298)
<223> n = A,T,C or G

```

```

<400> 399
acggagggtgg aggaagcgnc cctgggatcg anaggatggg tccctgncatt gaccnccctn 60
gggggtgceng catggagcgc atggggcgcg gcctggggcca cggcatggat cgcgtgggct 120
ccgagatoga ggcgatgggc ctgggtcatgg accgcatggg ctccgtggag cgcgatgggt 180
ccggcattga ggcgatgggc ccgctgggac tcgaccacat ggctccanc attgancgca 240
tggggccagac catggagcgc attggctctg gcgtggagcn catgggtgcc ggcattggg 298

```

```

<210> 400
<211> 548
<212> DNA
<213> Homo sapiens

```

```

<400> 400
acatcaacta ctctctcatt ttaaggtatg gcagttccct tcatcccccct ttcttgcctt 60
gtacatgtac atgtatgaaa ttctcttctc ttaccgaact ctctccacac atcacagggt 120
caaaagaacca caccgtttag aggytaagag ggcacctat gaaatgaaat ggtgatttct 180
tgagtctctt ttttcacagt ttaaggggac atggcaggac ttagagttgc gagttaagac 240
tgcagagggc tagagaatta ttccatacag gccttgaggc caccatgtc acttatcccg 300
tataccctct caccatcccc ttgtctacte tgatgccccc aagatgcaac tgggcagcta 360
gttggcccca taattctggg cctttgttgt ttgttttaat tacttgggca tcccaggaag 420
ctttccagtg atctcctacc atgggccccc ctcttgggat caagccctc ccaggccctg 480
tccccagccc ctcttgcgcc agcccaccgg ctbgccttgg tgctcagccc tcccattggg 540
agcagggtt 548

```

```

<210> 401
<211> 355
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc_feature
<222> (1)...(355)
<223> n = A,T,C or G

```

```

<400> 401
actgttttca tgttatgttt ctacacattg ctacctcagt gctcctggaa acttagcttt 60
tgatgtctcc aagtagtcca ccttcattta accctttgaa actgtatcat ctttggccaag 120
taagagtggg ggcctatttc agctgctttg acnaaatgac tggctcctga cttaacgttc 180
tataaatgaa tgtgctgaag caaagtgcct atggtggcgg cgaagaagan aaagatgtgt 240
tttgttttgg actctctgtg gtcccttcca atgctgnggg ttcccaacca ggggaagggt 300

```


cccttttgcg ttgccaagtg ccataaccat gagcactact ctaccatggg totgc 355

<210> 402

<211> 407

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(407)

<223> n = A,T,C or G

<400> 402
atggggcaag ctggataaag aaccaagacc cactggagta tgcgtgtotto aagaacacca 60
tctcacatgc ggtggcctac ataggctcaa aataaaggaa tggagaaaaa tatttcaagg 120
aaatggaaaa cagaaaaaag cagggtgttg acttctactt tctgacaaaa cagactatgc 180
gaataaagat aaaaaagaga aggcatttac aaaggtgggc ctgacctttg ataatctca 240
ttgcttgata ccaacctggg ctgttttaat tgcctcaaac aaaaggataa tttgctgagg 300
ttgtggagct tctccctgc agagagtcct tcatctccca aaatttgggt gagatgtaag 360
gntgattttg ctgacaactc cttttctgaa gttttactca tttccaa 407

<210> 403

<211> 303

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(303)

<223> n = A,T,C or G

<400> 403
cagtatttat agcnaactg aaaagctagt aycaggcaag tctcaaatcc aggcacccaa 60
tctaagcaa gagccctggc atgggtgaaa tgcaaaaagg gagtctggcc aatctacaaa 120
tagagaacaa gacctartca gtcctgacaa aaaaggcaga caccaacatg gatctcatgg 180
gggattggat attgtaatta tagagcagga agatgacagt gatcgtcatt tggcacaaca 240
tottaacaa gaccgaaac cattattttac ataaacctcc attcggtaac catgttgaaa 300
gga 303

<210> 404

<211> 225

<212> DNA

<213> Homo sapiens

<400> 404

aagtgttaact tttaaaaakt tagtggattt tgaaaattct tagaggaaag taaaggaaaa 60
attgttaatg cactcattta cttttacatg gtgaaagttc tctcttgatc ctacaaacag 120
acattttcca ctgctgtttc catagtgtgt aagtgtatca gatgtgttgg gcatgtgaa 180
ctccaagtcg ctgtgttaata aataaagtat ctttatttca ttcat 225

<210> 405

<211> 334

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(334)

<223> n = A,T,C or G

<400> 405

```

gagctgttat aatgtgagtt ctactaggaa atcatcaaat ctgaggggttg tctggaggac 60
ttcaatacac ctccccccat agtgaatcag ctcccagggg gtccagtcac tctcttact 120
tcacccccat cccatgccaa aggaagaccc tccctccttg gtcacagcc ttctctaggc 180
ttcccagtg ctcaggaca gagtgggtta tgttttcagc tccatccttg ctgtgagtgt 240
ctggtgagggt tgtgcctcca gcttctgtc agtgcctcat ggacagctgc cagcccatgt 300
cactctccac tctctcannng tggatcccac ccc 334

```

<210> 406

<211> 216

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(216)

<223> n = A,T,C or G

<400> 406

```

tttcatacct aatgagggag ttganatnac atnnaaccag gaaatgcctg gatctcaang 60
gaaacaaaca cccaataaac tcggagtggt agactgacaa ctgtgagaca tgcacttgct 120
acnaaacaca aattttnatgt tgcacccttg tttctacacc tgtgggttat gacaaagaca 180
actgccaaag aatnbtcaag aaggaggact gccant 216

```

<210> 407

<211> 413

<212> DNA

<213> Homo sapiens

<400> 407

```

gctgaattgc tagtatcctc tgcattcatt gaagcacaag aacttcattgc attgactcat 60
gtcaaatgcaa taggatkaaa aaataaattt gatatacat ggaacagac aaaaaatatt 120
gtacaacatt gcacccagtg tcagattcta cacttgcca ctacaggaagc aagagttaat 180
cccagaggtc tatgtcctaa tgtgttatgg caaatggatg tcatgcaagt aacttcattt 240
ggaaaattgt cattttgtcc tgtgacagtt gatacttatt cacttttcat atgggcaacc 300
tgccagacag gagaasgtct tcccatgtta aaagacattt attatcttgt tttcctgtca 360
tgggagttcc agaaaaagtt aaaacagaca atgggacagg ttctgtagta aag 413

```

<210> 408

<211> 183

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(183)

<223> n = A,T,C or G

<400> 408

```

ggagctngcc ctcaaktccct ccaatntctat gttancatat ttaatgtctt ttgnattaa 60
tnccttaacta gttaatccct aaagggctan ntaatcotta actagtcctt ccattgtgag 120
cattatccct ccagtatton ccttctnttt tatttaactc ttccctggcta cccatgtact 180
ntt 183

```

<210> 409

<211> 250

<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)... (250)
<223> n = A,T,C or G

<400> 409
cccacgcatg ataagctctt tctttctgta agtccctgcta ggaatcctc aaactctgacg 60
gtgggtttggg ggacctgaac aaacctcctg taattaatca gctttcagtt tctccccccta 120
gtccctctct caacaacata ggaggatcct ccccttcttt ctgctcaccg ccttatctag 180
gcttcccagt gccccagga cagcgtgggc tatgtttaca gcgctcctt gctggggggg 240
ggccttatgc 250

<210> 410
<211> 306
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)... (306)
<223> n = A,T,C or G

<400> 410
ggctgggttg caagaatgaa atgaatgatt ctacagctag gacttaacct tgaaatggaa 60
agtcttgcaa tcccatctgc aggatccgtc tgtgcacatg cctctgtaga gaggcagcatt 120
cccagggaac ttggaacacg ttgggaactgt aaggtgcttg ctccccaga cacatcctaa 180
aaggtgttgc aatgggtgaaa accgcttctt tctttattgc cctttcttat ttatgtgaac 240
nactggttgg cttttcttgn atctttttta aactggaaaag ttcattgng aaatgaata 300
tctg 306

<210> 411
<211> 261
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)... (261)
<223> n = A,T,C or G

<400> 411
agagataatn cttaggtnaa agttcataga gtcccatga actatatgac tggccacaca 60
ggatcttttg catttaagga ttctgagatt ttgcttgagc aggattagat aaggctgttc 120
tttaaatgtc tgaaatggaa cagatttcaa aaaaaaaccc cacaatctag ggtgggaaca 180
aggaaggaaa gatgtgaata ggctgatggg caaaaaacca atttaacct cagttccagc 240
cttctctcaa gngaggcaa a 261

<210> 412
<211> 241
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)... (241)

<223> n = A,T,C or G

<400> 413

```
gttcaatggt accgacatt tctacaacac cccactcacc gatgtattcg ttgcccagtg 60
ggaacatacc agcctgaatt tggaaaaaat aattgctgtt cttgcccagg aaatactacg 120
actgaatttg atggctccac aaacataacc cagtgtaaaa acagaagatg tggaggggag 180
ctgggagatt tcactgggta cattgaattc ccaaaactacc cangcaatta cccagccaac 240
a 241
```

<210> 413

<211> 231

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(231)

<223> n = A,T,C or G

<400> 413

```
aaactcttaca atcccaagtga ctcatctctg tgcctgaatc ctttccactg tctcatctcc 60
ctcatccaag ttctctagtac cttctctttg ttgtgaagga taatcaaacg gaacaacaaa 120
aagtttaactc tctcattttg gaacctaaaa actctcttct tcttgggtct gagggtctca 180
agaatccttg aatcanttct cagatcattg gggacaccan atcaggaacc t 231
```

<210> 414

<211> 234

<212> DNA

<213> Homo sapiens

<400> 414

```
actgtccatg aagcactgag cagaagctgg aggcacaacg caccagacac tccaggaag 60
gatggagctg aaacacatac ccactctgtc ctggaggcac tgggaagcct agagaaggct 120
gtgagccaag gagggagggt cttccttttg catgggatgg ggatgaagta aggagagggg 180
ctggaccccc tggaaagctga ttcaactatg ggggagggtg attgaagtc tcca 234
```

<210> 415

<211> 217

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(217)

<223> n = A,T,C or G

<400> 415

```
gcattaggatt aagactgagt atcttttcta cattcttcta actttctaa gggcacttct 60
caaaacacag accaggtage aaatctccac tgcctcaagg ntctcaccac cactttctca 120
cacttagcaa tegtgaatt cagtctact tctgagggca gaagaatggc tcagaaaaat 180
antggattat aaaaaataac aattaagaaa aataatc 217
```

<210> 416

<211> 213

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature
 <222> (1)...(213)
 <223> n = A,T,C or G

<400> 416
 atgcataatnt aaagganact gcctogcttt tagaagacat ctggnetgct ctctgcatga 60
 ggcacagcag taaagctott tgattcccag aatcaagaac tctcccttto agactattac 120
 ogaatgcaag gtgggttaatt gaaggencact aattgatgct caaatagaag gatattgact 180
 atattggaac agatggagtc tctactacaa aag 213

<210> 417
 <211> 303
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)...(303)
 <223> n = A,T,C or G

<400> 417
 nagtcttcag gccatcagg gaagtccaca ctggagagaa gtcatacata tgtactgtat 60
 gtgggaaagg ctttactctg agttcaaato tcaagoccaa tcagagagtc cacactggag 120
 agaagccata caaatgcaat gagtgtggga agagcttcag gagggattcc cattatcaag 180
 ttcattctagt ggtccacaca ggagagaaac cctataaatg tgagatatgt gggaagggct 240
 tcantraaag ttcgtatott caaatccatc ngaagyncca cagtatanan aaacotttta 300
 agt 303

<210> 418
 <211> 328
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)...(328)
 <223> n = A,T,C or G

<400> 418
 tttttggcgg tgggtgggca gggacgggac angagtetca ctctgttgcc caggctggag 60
 tgcacaggca tgatctcggc tcaactacaac cctgcctcc catgtccaag cgattcttgt 120
 gcctcagcct tccctgtagc tagaattaca ggcacatgcc accacaccca gctagttttt 180
 gtattttttag tagagacagg gtttcacccat gttggccagg ctggtctcaa actcctnacc 240
 tcagnggctca ggctggcttc aaactcctga cctcaagtga tctgccaccr tcagcctccc 300
 aaagtgcctan gattacagga cgtgagcc 328

<210> 419
 <211> 389
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)...(389)
 <223> n = A,T,C or G

<400> 419
 cctcctcaag aaggcctgtg gtccgcctcc cggcaaccaa gaagcctgca gtgccatctg 60

```

acctctgagg catggactgg agcctgaaag gcagcgtaca ccttctctct gatcttctct 120
cttgttctct ctctgtggct ccattcatag cacagtgtgt gaactgaggg ttgtgcaggg 180
cgagcaaggc caagctgggt caaagagcaa ccagtcacct ctgcaacggg gtgcraggca 240
cgggttctcc agccaccaac ctcaactcgt ccgcgaaatg gcacatcagt tcttctaccc 300
taaaggtagg accaaagggc atctgtcttt ctgaagtctt ctgctctatc agccatcacg 360
tggcagccac tcnngctgtg tcgacgcgg 389

```

<210> 420

<211> 408

<212> DNA

<213> Homo sapiens

<400> 420

```

gttctctcta aetcttgcca gaaacagctc tcttcaacat gagagctgca cccctctctc 60
tggccagggg agcaagcctt agccttgggt tcttgtttct gcttttttct tggctagacc 120
gaagtgtact agccaaggag ttgaagtttg tganttttgt gttctgggcat ggagaccgaa 180
gtcccatlga cacttttccc actgacccca taagggaatc ctcatggcca caaggatttg 240
gccaaactcac ccagctggggc atggagcagc attatgaact tggagagtat ataagaaaga 300
gatatagaaa attcttgaat gagtctata aacatgaaca ggtttatatt cgaagcacag 360
acgttgaccg gactttgatg aagtgtatg acaaaccttg caagcccg 408

```

<210> 421

<211> 352

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> {1}... (352)

<223> n = A,T,C or G

<400> 421

```

gtcaaaaaat ctttttactg atnngcatgg ctacacaatc attgactatt acggaggcca 60
gaggagaatg aggcctggcc tgggagccct gtgcctacta naagcacatt agattatcca 120
ttcactgaca gaacagggtct tttttgggtc cttcttctcc accacnatac acttgacgtc 180
ctccttcttg aagattcttt ggcagttgtc tttgtcataa cccacagggtg tagaaacaag 240
ggtgcaacat gaaatttctg cttcgtagca agtgcattgc tcacaagttg gcangtctgc 300
cactcogagt ttattgggtg tttgttctct ttgagatcca tgcatttctc gg 352

```

<210> 422

<211> 337

<212> DNA

<213> Homo sapiens

<400> 422

```

atgccaccat gctggcaatg cagcggggcg tcgaaggcct gcatactccg cccaagctgg 60
cgatgatcga cggcgaacgt tgccgaaggt tgcctatgcc agccgaagcg gtggtaagg 120
gcgatagcaa ggtgccggcg atcgcgcgcg cgtcaatcct ggccaaggct agcctgtgatc 180
gtgaatggc agctgtcgaa ttgatctacc cgggttatgg catcggcggg cataagggtc 240
atccgacacc ggtgcacctg gaagccttgc agcggctggg gcogaogcgg attcacogac 300
gcttcttccg ccggtacggc tggcctatga aaattat 337

```

<210> 423

<211> 310

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature
 <222> {1}...{310}
 <223> n = A,T,C or G

<400> 423
 gctcaaaaat ctttttactg atatggcatg gctacacaat cattgactat tagaggccag 60
 aggagaatga ggccctggcct gggagccctg tgccactan aagencatta gattatccat 120
 tcactgacag aacaggtctt ttttgggtcc ttcttctcca ccacgatata cttgcagtc 180
 tcttcttga agattctttg gcagttgtct ttgtcataac ccacaggtgt aaaaaaagg 240
 gtgcaacatg aaatttctgt ttcgtagcaa gtgcatgtct cacagttgtc aagtcctgcc 300
 tccgagtta 310

<210> 424
 <211> 370
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> {1}...{370}
 <223> n = A,T,C or G

<400> 424
 gctcaaaaat ctttttactg ataggcatg gctacacaat attgactatt agaggccaga 60
 ggagaaatga gcttggcctg ggagccctgt gctactaga agcacattag attatccatt 120
 cactgacaga acaggtcttt ttgggtctct tcttctccac cagcatatac ttgcagtcct 180
 ccttcttga gattcttttg cagttgtctt tgtcataacc cacaggtgtg gaaacatcct 240
 ggttgaatct cctggaaact cctcattagg tatgaaatag catgatgcac tgcataaagt 300
 caggaagggtg gcaaagatca caacgttgc cagganaaca ttcatgtga taagcaggac 360
 tccgtcgaag 370

<210> 425
 <211> 216
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> {1}...{216}
 <223> n = A,T,C or G

<400> 425
 aattgctatn ntltattttg ccaactcaaa taattaccaa aaaaaaaaaa lnttaaatga 60
 taacaacnca acatcaaggc aaaaanaaca ggaatggntg actntgcata aatnggccga 120
 anattatcca ttatnttaag ggttgacttc aggnacagc acacagacaa acatgccag 180
 gaggntntca ggacogctcg atgtntntg aggggg 216

<210> 426
 <211> 596
 <212> DNA
 <213> Homo sapiens

<400> 426
 cttccagtga ggataaccct gttgcccagg gccgaggttc tccattaggc tctgattgat 60
 tggcagtcag tgatggcagg gtgttctgat cattecgact gccccaagg tgcctggcca 120
 gctctctgtt ttgctgagct ggcagttaga cctaatttgt taattaagag tagatggtga 180
 gctgtccttg tattttgatt aacctaatgg ccttccagc acgactcgga ttcagctgga 240
 gacatcaagg caacttttaa tgaantgatt tgaagggcca ttaaggagga cttcccgta 300

```

ttaggcagtt catctgcact gataacttct tggcagctga gctggctcga gctgtggccc 360
aaacgcacac ttggcttttg gttttgagat acaactctta atcttttagt catgcttgag 420
ggtggatggc cttttcagct ttaacccaat ttgcactgcc ttggaagtgt agccaggaga 480
atacactcat atactcgtgg gcttagaggg cacagcagat gtcattggtc tactgcctga 540
gtcccgctgg tcccatccca ggaccttcca tgggcagata cctgggagcc cgtgct 596

```

```

<210> 427
<211> 107
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc_feature
<222> {1}...{107}
<223> n = A,T,C or G

```

```

<400> 427
gaagaattca agttagggtt attcaaaggg cttaacgaga atcctanacc caggnoccag 60
ccccggagca gccttanaga gctcctgttt gactgcctgg ctacagng 107

```

```

<210> 428
<211> 38
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc_feature
<222> {1}...{38}
<223> n = A,T,C or G

```

```

<400> 428
gaacttccna anaangactt tattcactat ttacactt 38

```

```

<210> 429
<211> 544
<212> DNA
<213> Homo sapiens

```

```

<400> 429
ctttgctgga cgggaataaaa gtggaogcaa gcatgaccto ctgatgaggg cgttgcattt 60
attgaagaga ggttgacgac ctgagggttca gattaaaatc cgagaattgt atagacggcg 120
atatccarga actcttgaag gactttctga ttatccaca atcaaatcat cgtttttcag 180
tttggtatgt ggtcctcac ctgtagaacc tgacttggcc gtggctggaa tccactcgtt 240
gccttccact tcagttacac ctcaactcac atcctctcct gttggttctg tgcgtcttca 300
agatactcag cccacatttg agatgcagca gccatctccc ccaattcttc ctgtccatcc 360
tgatgtgcag ttaaaaaatc tgccttttta tgatgtcctt gatgtttctc tcaagcccac 420
gagtttagtt caaagcagta ttcagcgatt tcaagagaag ttttttattt ttgctttgac 480
acctcaacaa gttagagaga tatgcatacc cagggatttt ctgccaggtg gtaggagaga 540
ttat 544

```

```

<210> 430
<211> 507
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc_feature
<222> {1}...{507}

```


<223> n = A,T,C or G

<400> 430

```

ottatcncaa tggggctccc aaacttggct gtgcagtgga aactccgggg gaattttgaa 60
gaacactgac acccatcttc caccocgaca ctctgattta attgggctgc agtgagaaca 120
gagcatcaat ttaaaaaagct gccacagaatg ttntcctggg cagcgttgtg atctttggcn 180
cttctgtgac tttatgcaat gcatcatgct atttcatacc taatgaggga gttccaggag 240
attcaaccag gatgtttcta cncctgtggg ttatgacaaa gacaaatgcc aaagaatntt 300
caagaaggag gactgcaagt atatcgtggt ggagaagaag gacccaaaaa agacctgttc 360
tgtcagtgaa tggataatct aatgtgcttc tagtaggcac agggctccca ggcacagcct 420
cattctcttc tggcctctaa tagtcaatga ttgtgtagcc atgcctatca gtaaaaagat 480
ttttgagcaa aaaaaaaaaa aaaaaaa

```

507

<210> 431

<211> 392

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(392)

<223> n = A,T,C or G

<400> 431

```

gaaaattcag aatggataaa aacaaatgaa gtacaaaata tttcagattt acatagcgat 60
aaacaagaaa gcacttatca ggaggactta csaatggasg tacactctan aaccatcctc 120
tatcatggct aaatgtgaga ttagcaragc tgtattattt gtacattgca aagacctaga 180
aagagatggg aaacaaaatc ccaggagttt tgtgtgtgga gtccctgggtt ttccaacaga 240
catcattcca gcattctgag attaggggna ttggggatca ttctggagtt ggaatgttca 300
acaaaagtga tgtgttagg taaaatgtac aacttctgga tctatgcaga cattgaaggt 360
gcaatgagtc tggcttttac tctgctgttt ct

```

392

<210> 432

<211> 387

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(387)

<223> n = A,T,C or G

<400> 432

```

ggtatccta cataatcaaa tatagctgta gtacatgttt toattggngt agattaccac 60
aaatgcaagg caacatgtgc agatctcttg tcttattctt ttgtctataa tactgtattg 120
ngtagtccaa gctctcggna gtccagccac tngaaacat gctcccttta gattaacctc 180
gtggacnctn ttgttgnatt gtctgaactg tagngccctg tattttgctt ctgtctgnga 240
attctgttgc ttctggggca ttcccttgng atgcagagga ccaccacaca gatgacagca 300
atctgaattg ntccaatcac agctgogatt aagacatact gaaatcgtac aggacoggga 360
acaacgtata gaacactgga gtccctt

```

387

<210> 433

<211> 281

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> {1}... (281)

<223> n = A,T,C or G

<400> 433

```

ttcaacttagc anagaanaact gcttcagggg gtgtaaaatg aaaggcttcc acgcagttat 60
ctgattaaag aacactaaga gagggacaag gctagaagcc gcaggatgtc tacactatag 120
caggcnctat ttgggttggc tggaggagct gtggaaaaca tggagagatt ggcgctggag 180
ctcgccgtgg ctattcctcn ttgntattac accagngagg ntctctgtnt gcccaactgg 240
tnnaaaaccg ntatacaata atgatagaat aggaracaca c 281

```

<210> 434

<211> 484

<212> DNA

<213> Homo sapiens

<400> 434

```

ttttaaaata agcatttagt gctcagtcgc tactgagtae ttttctcttc acctctctcg 60
aatttaattc ttccaacttg caatttgcaa ggattacaca ttccactgtg atgtatatgg 120
tggttgcaaaa aaaaaaaagt gtctttgttt aaaattactt ggtttctgaa tccatcttgc 180
tttttcccca ttggaactag tcattaaccc atctctgaac tggtagaaaa acatctgaag 240
agctagtcta tcagcatctg acaggtgaat tggatggttc tcagaacctt tccarccaga 300
cagcctgttt ctatcctgtt taataaatta gtttgggttc tctacatgca taacaaaccc 360
tgcaccaatc tgtcacataa aagtctgtga cttgaagttt agtcagcacc cccacaaaac 420
tttatttttc tatgtgtttt ttgcaacata tgagtgtttt gaaataaag taccatgtc 480
ttta 484

```

<210> 435

<211> 424

<212> DNA

<213> Homo sapiens

<400> 435

```

gagcagctca gagcaggtca cttctgtgct tccaggtcct ccttcaagga agccccatgt 60
gggtagcttt caatatcgca ggttcttact cctctgcttc tataagctca aacccaccaa 120
cgatcgggca agtaaacccc ctcctctgccc gacttcggaa ctggcggagag ttccagcgcag 180
atgggcctgt ggggaggggg caagatagat gagggggagc ggcatgggtc ggggtgaccc 240
cttggagaga ggaaaaaagg cacaagaggg gctgccaccg ccactaacgg agatggccct 300
ggtagagacc ttctgggggtc tggaaacctt ggactcccca tgctctaaat cccacactct 360
gctatcagaa acttaaaactt gaggattttc tctgtttttc actcgcaata aattcagagc 420
aaac 424

```

<210> 436

<211> 667

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> {1}... (667)

<223> n = A,T,C or G

<400> 436

```

accttgggaa nactctcaca atataaaggy togtagactt tactccaaat tccaaaaagg 60
tcttggccat gtaatcttga aagttttccc aaggtagcta taaaatcctt ataaggggtg 120
agcctcttct ggaattcttc tgatttcaaa gtctcactct caagtctctg aaaaaggagg 180
cagttcctga aaggcaggtg tagcaactga tcttcagaaa gaggaactgt gtgcaccggg 240
atgggctgcc agagtaggat aggattccag atgctgacac ctctctgggg aaacagggct 300
gccaggtttg tcatagactt catcaaaagtc cggctcaagct ctgtgcttgc aatataaacc 360

```

tggtcatgtt tataggactc attcaagaat tttctatato tctttcttat atactctcca 420
 agttcataat gctgctccat gccagctgg gtgagttggc caaatccctg tggccatgag 480
 gattccctta tggggctcag gggaaagggt tcaatgggac ttcggctctc atgcrgaac 540
 accaaagtca caaacttcaa ctccctggct agtacacttc ggtctagcca gaaaaaaagc 600
 agaaacaaga agccaaggct aaggcttgct gccctgccag gaggaggggt gcagctctca 660
 tgttgag 667

<210> 437

<211> 693

<212> DNA

<213> Homo sapiens

<400> 437

ctacgtctca accctcattt ttaggttaagg aatcttaagt ccaaagatat taagtgactc 60
 acacagccag gtaaggaaag ctggattggc acactaggac tctaccatac cgggttttgt 120
 taaagctcag gttaggaggc tgataagctt ggaaggaaac tcagacagct ttttcagatc 180
 ataaaagata attcttagcc catgttcttc tccagagcag acctgaaatg acagcacagc 240
 aggtactcct ctattttcac cctcttgct tctactctct ggcagtcaga cctgtgggag 300
 gccatgggag aaagcagctc tctggatggt tgtacagatc atggactatt ctctgtggac 360
 catttctcca ggttacccta ggtgtcacta ttggggggac agccagcact tttagcttte 420
 atttgagttt ctgtctgtct ttagtagagg aaacttttgc tcttcacact tcacatctga 480
 acacctaaat gctgttgcct ctgaggtggt gaaagacaga tatagagctt acagtattta 540
 tctatttct aggcactgag ggtgtggggg taccctgtgg tgccaaaaca gatcctgttt 600
 taaggacatg ttgcttcaga gatgtctgta actatctagg ggtctgtgtg gctctttacc 660
 ctgcctcatg tgcctctctg gctgaaaatg acc 693

<210> 438

<211> 360

<212> DNA

<213> Homo sapiens

<400> 438

ctgcttatca caatgaatgt tctcctgggc agogttctga tctttggcac cttegtgact 60
 ttatgcaatg catcatgcta ttccatacct aatgaggagg tccaggaga ttcaaccagg 120
 atgtttctac acctgtgggt tatgacaaag acaactgcca aagaactctc aagaaggagg 180
 actgcaagta tatctgggtg agaagaagga cccaaaaaag acctgttctg ttagtgaatg 240
 gataatctaa tgtgcttcta gtaggcacag ggtccocagg ccaggcctca ttctctctg 300
 gcccttaata gtcaataatt gtgtagccat gccatcagc aanaagattt ttgagcaaac 360

<210> 439

<211> 431

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(431)

<223> n - A,T,C or G

<400> 439

gttccnnta actcctgcca gaaacagctc tctcaaacat gagagctgca cccctcctcc 60
 tggccagggc agcaagcctt agccttggct tottgcttct gtttcttttc tggctagacc 120
 gaagtgtact agccaaggag ttgaagtttg tgactttggt gtttoggcat ggagaccgaa 180
 gtccattga cacttttccc actgaccca taaaggaaac ctcatggcca caaggatttg 240
 gccaaactca ccagctgggc atggagcagc attatgaact tggagagtat ataagaaaga 300
 gatatagaaa attcttgaat ggtcctata aacatgaaca ggtttatatt cgaagcacag 360
 acgttgaccg gactttgatg agtgctatga caaacctggc agcccgctga cggggccgag 420
 aatttagtag t 431

<210> 440
 <211> 523
 <212> DNA
 <213> Homo sapiens

<400> 440
 agagataaag cttagggtcaa agttcataga gttcccatga actatatgac tggccacaca 60
 ggatccttttg tatttaaggga ttctgagatt ttgcttgagg aggattagat aaggctgttc 120
 tttaaatgtc tgaatggaa cagatttcaa aaaaaaacc cacaatctag ggtgggaaca 180
 aggaaggaaa gatgtgaata ggctgatggg caaaaaacca atttaccat cagttccagc 240
 cttctctcaa ggagaggcaa agaaaggaga tacagtggag acatctggaa agttttctcc 300
 actggaaaac tgcctactatc tgtttttata tttctgttaa aatatactag gctacagaa 360
 taasaattaa aacctctttg tgtcccttgg tcttggaaac tttatgttcc ttttaaggaa 420
 acaaaaatca aactttarag aaagatttga tgtatgtaac acatatagca gctcttgaag 480
 tatatatatc atagcaaata agtcacttga tgagaacaag cta 523

<210> 441
 <211> 430
 <212> DNA
 <213> Homo sapiens

<400> 441
 gttcctctca actcctgcca gaaacagctc tctcaacat gagagctgca cccctcctcc 60
 tggccagggc agcaagcctt agccttggct tcttgtttct gcttttttcc tggctagacc 120
 gaagtgtact agccaaggag ttgaagtttg cgaacttggg gtttoggcat ggagaccgaa 180
 gtcccattga cacccttccc actgacccca taaagggaac ctcatggcca caaggatttg 240
 gccaaactca ccagctgggc atggagcagc attatgaact tggagagtat ataagaaaga 300
 gatatagaaa attcttgaat gagtctctata aacatgaaca ggtttataat cgaagcacag 360
 acgttgaccg gaactttgat agtgcctatga caaacctggc agcccttoga cggggccgag 420
 aatttagtag 430

<210> 442
 <211> 362
 <212> DNA
 <213> Homo sapiens

<400> 442
 ctaaggaatt agtagtgttc ccataccttg tttggagtgt gctattctaa aagattttga 60
 ttctctggaa tgacaattat attttaactt tgggtgggga aagagttata ggaccacagt 120
 cttcacttct gatacttgta aattaatctt ttattgcact tgttttgacc attaagctat 180
 atgttttagaa atgggtcattt taaggaaaaa ttagaasaat tctgataata gtgcagaata 240
 aatgaattaa tgttttaactt aattttatatt gaactgtcaa tgacaastaa aaattcttcc 300
 tgattatttt ttgttttcat ttaccagaat aaaaactaag aatttaaaagt ttgattacag 360
 tc 362

<210> 443
 <211> 624
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)...(624)
 <223> n = A,T,C or G

<400> 443
 tttttttttt gcaacacaat atacatcaca gtgaatgtg taatccttgc aaattgcaag 60

```

ttgaaagaat taaattcaga ggagggggaga gaaagagtac tcagtaggga ctgagcacta 120
aatgcttatt ttaaaagaaa tgtaaagagc agaaagcaat tcaggctacc ctgccttttg 180
tgctggctag tactccggtc ggtgtcagca gcacgtggca ttgaacattg caatgtggag 240
cccaaacac acgaatggg gtgaatttgg ccaactttct attaacttgg ctccctgttt 300
tataaaatat tgtgaataat atcactact tcaaaagggca gttatgaggc ttaaataaac 360
taacgcctac aaaaacactta aacatagata acatagggtc aagtactatg tatctggtac 420
atggtaaaca tccctattat taaagtcaac gctaaaatga atgtgtgtgc atatgctaata 480
agtacagaga gaggggcactt aaaccaaacta agggcctgga ggggaagggtt cctggaaaga 540
ngatgcctgt gctgggtcca aatcttgggc tactatgacc ttggcccaat tatttaaaat 600
ttgtccctat ctgctaaaca gattc

```

624

```

<210> 444
<211> 425
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc_feature
<222> (1)...(425)
<223> n = A,T,C or G

```

```

<400> 444
gcacatcatt nntcttgcac tctttgagaa caagaagatc agtaaatagt ccagaagtgg 60
gaagctttgt ccaggcctgt gtgtgaaccc aatgttttgc ttagaataag aacaagtaag 120
ttcattgcta tagcataaca caaaatttgc ataagtgtg gtcagcaaat ccttgaatgc 180
tgcttaaatgt gagaggttgg taaaatcctt tgtgcaaac tctaactccc tgaatgtttt 240
gctgtgctgg gacctgtgca tgccagacaa ggccaagctg gctgaagag caaccagcca 300
cctctgcaat ctgccacctc ctgctggcag gatttgtttt tgcacctgt gaagagccaa 360
ggaggcacca gggcataagt gactagactt atggttcgacg cggccgcgaa tttagtagta 420
gtaga

```

425

```

<210> 445
<211> 414
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc_feature
<222> (1)...(414)
<223> n = A,T,C or G

```

```

<400> 445
catgtttatg nttttggatt actttgggca cctagtgttt cttaactcgc tatcattctt 60
ttctgttttt caaaagcaga gatggccaga gtctcaacaa actgtatctt caagtctttg 120
tgaattctt tgcabgtggc agattatbgy atgtagtctt ctttaactag catataaatc 180
tggtgtgttt cagataaatg aacagcaaaa tgtggtggaa ttaccatttg gaacattgtg 240
aatgaaaaat tgtgtctcta gattatgtaa caaatcaata ttccctaacc attgatcttt 300
ggatttttat aatcctactc acaaatgact aggtctctcc tctgtattt tgaagcagtg 360
tgggtgctgg attgatataa aaaaaaaaag tgcacggggc cgcgaattta gtatg 414

```

```

<210> 446
<211> 631
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc_feature
<222> (1)...(631)

```

<223> n = A,T,C or G

<400> 446

```
acsaattaga anaaagtgc agagaacacc acataccttg tccggaacat tacaatggct 60
tctgcatgca tgggaagtgt gagcattcta tcaatatgca ggagccatct tgcagggtgtg 120
atgctgggtta tactggacca cactgtgaaa aaaggacta cagtgttcta tacgttgttc 180
ccggtcctgt acgatttcag tatgtcttaa tggcagctgt gattggaaac attcagattg 240
ctgtcatctg tgtgggtgtc ctctgcatca caagggccaa actttaggta atagcattgg 300
actgagattt gtaaaccttc caaccttcca ggaatgccc cagaagcaac agaattcaca 360
gacagaagca aaatacaggg cactacagtt cagacaatac aacaagagcg tccacgaggt 420
taatctaaag ggagcatggt tccagtggtc tggactacc agagccttgg ctacacaata 480
cagtattata gacaaaagaa taagacaaga gatctacaca tgttgccttg catttgttgt 540
aatctacacc aatgaaaaca tgtactacag ctatatattga ttatgtatgg atatatctga 600
aatagtatac attgtcttga tgttttttct g 631
```

<210> 447

<211> 585

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> {1}...{585}

<223> n = A,T,C or G

<400> 447

```
ccttgggaaa antntcacea tataaaggggt cgtagacttc actccaaatt ccaaaaagggt 60
cctggccatg taatcctgaa agttttccca aggtagctat aaatcctta caagggtgca 120
gcctcttctg gaattcctct gatttcaaag cctcactctc aagtctctga aaacgagggc 180
agttcctgaa aggcaggtat agcaactgat ctccagaaag aggaactgtg tgcacgggga 240
tgggtgcca gagtaggata ggattccaga tctgacacc ttctggggga aacaggggtg 300
ccaggtttgt catagcactc atcaaagtcc ggtcaaogtc tgtgcttcga atataaacct 360
gttcattgtt ataggactca ttcaagaatt ttctatatct ctttcttata tactctocaa 420
gttcataatg ctgtcccatg ccagctggg tgagttggcc aaatccttgt ggccatgagg 480
attcctttat ggggtcagtg ggaaggtgt caatgggact tgggtctcca tggcgaaaca 540
ccaaagtcac aaacttcaac tccttggcta gtacacttcg gtcta 585
```

<210> 448

<211> 93

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> {1}...{93}

<223> n = A,T,C or G

<400> 448

```
tgtcgtggg tcattctgan nncgaactg acntgcccag ccttgcogan gggccnccat 60
ggctccctag tgcctggag agganggggc tag 93
```

<210> 449

<211> 706

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(706)

<223> n = A,T,C or G

<400> 449

```

ccaagttcat gctntgtgct ggacgctgga caggggggcaa aagcnnntgc tctgtgggtca 60
ttctgancac cgaactgacc atgccagccc tgcogattgt cctccatggc tccctagtgc 120
cctggagagg aggtgtctag tcagagagta gtccctggag gtggcctctg ngaggagcca 180
cggggacagc atcctgcaga tggtcggggc cgtcccatc gccattcagg ctgcccacac 240
gttgggaagg gcgattcgtg cgggcctctt cgtctattac ccagctggcg aaagggggat 300
gtgctgcaag gcgattcagt tgggtaacgc caggggtttc ccagtccga cgttgtaaaa 360
cgacggccag tgaattgaat ttagggtgac ctatagaaga gctatgacgt cgcattgacg 420
cgtacgtaag cttcgatcct ctagagcggc cgcctactac tactaaatc gcggccgctg 480
cgacgtggga tcncactga gagagtgagg agtgcacatg gctggacnct gtccatgaag 540
cactgagrag aagctggagg cacaacgcnc cagacactca cagctactca ggaggctgag 600
aacaggttga acctgggagg tggaggttgc aatgagctga gatcaggccn ctgncacca 660
gcattggaag cagagtgaaa ctccatctta aaaaaa aaaaaa 706

```

<210> 450

<211> 493

<212> DNA

<213> Homo sapiens

<400> 450

```

gagacggagt gtcactctgt tgcacaggct ggagtgacag aagacactgt ctaagaaaaa 60
acagttttta aaggtaaaac aacataaaaa gaaatctcct atagtggaaa taagagagtc 120
aaatgagggt gagaaactta caaagggatc ttacagacat gtccccaata tcaactgcag 180
agcctaagta taagaacaa ctttggggag aaacctcat ttgacagtga ygtacaatto 240
caagtcagggt agtgaaatgg gtggaattta actcaatta atctgccag ctgaaacgca 300
agagacactg tcagagaggt aaaaagttag ttctatccat gagggtgatt cacagctctc 360
tcaagtcac acatctgtga actcacagac caagttctta aacctctgt caaactctgc 420
tacaatcag aatcacctgg agagctttac aaactcccat tggcggagggt cgarccgggc 480
gagaatttag tag 493

```

<210> 451

<211> 501

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...{501}

<223> n = A,T,C or G

<400> 451

```

gggocgctcc cattcgccat tcaggctgag caactgttgg gaagggcgat cgggtgogggc 60
ctcttcgcta ttacgccagc tggcgaaaag gggatgtgct gcaaggcgat taagttgggt 120
aacgccaggg ttttcccagt cncgacgttg taacacgacg gccagtgagt tgaatttagg 180
tgacnctata gaagagctat gacgtcgcat gcacgcgtac gtaagcttgg atctctaga 240
ggggccgcct actactacta aattcgcggc cgcgtcgacg tgggattcnc actgagagag 300
tggagagtg catgtgctgg acnctgtcca tgaagcactg agcagaagct ggaggcacia 360
cgcncacag acacacagct actcaggagg ctgagaacag gttgaacctg ggaggtggag 420
gttgcaatga gctgagatca ggcncctgcn cccagcagtg gatgacagag tgaactcca 480
tcttaaaaaa aaaaaa a 501

```

<210> 452

<211> 51

<212> DNA

<213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)...(51)
 <223> n = A,T,C or G

<400> 452
 agacgggttcc accnttacaa enccttttag gatgggnntt ggggagcaag c 51

<210> 453
 <211> 317
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)...(317)
 <223> n = A,T,C or G

<400> 453
 tacatcttgc tttttcccca ttggaactag tcatttaccc atctctgaac tggtagasaa 60
 acatctgaag agctagtcta tcagcatctg gcaagtgaat tggatgggtc tcagaaccat 120
 ttaccccana cagcctgttt ctatcctgtt taataaatta gtttgggttc tctacatgca 180
 taacaaaccc tgcctcaatc tgtcacataa aagtcctgtga cttgaagttt antcagcacc 240
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 <213> Homo sapiens

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 agaagaccaa attcttctgc atcccagctt gcaaacnaaa ttgttctctt aggtctccac 180
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 gtttcaacgc attgatgact tctccaagga tcttcttttg gcctcgacca cattcagggg 180
 caaagaattt ctcatagcac agctcacaat acagggtctc tttctctct a 231

<210> 456
 <211> 231
 <212> DNA
 <213> Homo sapiens

<400> 456
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 tgcactcaaa ttcctttatc aggaataact acatagccac tatttacaaa gccattggaa 180

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tatttgaktt cattagcaat ctcttctcag agaccttga gctcattcag ctttgtatcc 180
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<211> 231

<212> DNA

<213> Homo sapiens

<400> 458

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acaccttaac cttgggtaac agcattctga attatcattt gggatgagta gaatttccaa 180
ggctctgggt taggcatttt ggggggccaag accccaggag aagaagattc t 231

<210> 459

<211> 231

<212> DNA

<213> Homo sapiens

<400> 459

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gcoctgcact gttttccctc caccacagcc atcctgtccc tcattggctc tgtgctttcc 180
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<213> Homo sapiens

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<211> 231

<212> DNA

<213> Homo sapiens

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<211> 231

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<213> Homo sapiens

<400> 463

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<213> Homo sapiens

<400> 464

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<210> 465

<211> 231

<212> DNA

<213> Homo sapiens

<400> 465

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aggatggcac aatttttgtc tgtgttcata atatactcag attagttcag ctccatcaga 180
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<213> Homo sapiens

<400> 466

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 <213> Homo sapiens

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<210> 468
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 <212> DNA
 <213> Homo sapiens

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<211> 2229

<212> DNA

<213> Homo sapiens

<400> 469

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2229

<210> 470

<211> 2426

<212> DNA

<213> Homo sapiens

<400> 470

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2426

<210> 471

<211> 812

<212> DNA

<213> Homo sapiens

<400> 471

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<211> 515

<213> DNA

<213> Homo sapiens

<220>

<221> misc_feature

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<223> n = A,T,C or G

<400> 472

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aaatcccttt	aaaggttagt	ttgtaaaatc	aggttaagctt	atttataatt	tgccttccatt	2160
tatttcactg	caaatatata	tttggatatt	tatatatatt	gtgcttctct	tgcctgtctt	2220
acagcaattt	gccttgcaga	gttctaggaa	aaaggtggca	tgtgttttta	ctttcaaaat	2280
atttaaatct	ccatcattat	aacaaaatca	atttttcaga	gtaatgatcc	tcaactgtgga	2340
gtcattttgat	tattaagacc	cggtggcata	agattacatc	ctctgactat	aaaaatctct	2400
gaagaaaaac	taggaatat	tggcttggac	attgcacttg	gcaatgaatt	tatgggcgct	2460
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ctaggatgaa	gtatattggt	actgtgcttt	gggattaaaa	taagtaacta	cagtttatag	2580
aaottttata	ctgatacaca	gacactaaaa	agggaaaggg	tttagatgag	aagctctgct	2640
atgcaatcaa	gaatctcagc	cactcatttc	tgtaggggct	gcaggagctc	cctgtaaaag	2700
gagggttatgg	agctctgtagc	ttcaggtaag	atacttaaaa	cccttcagag	ttctccatt	2760
ttttcccata	gtttcccaaa	aaaggttatg	acactttata	agaatgcttc	acttgtgaaa	2820
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aagaaatggc	cccagaataa	gcttctctag	ttgtaaaatt	ctatgtctat	ggctcaaat	3060
tgtatagtat	ctcaaaatat	aaatatatat	acatctcaga	taatatattt	gaatagcaa	3120
attcctgtta	gaaaataata	gtacttaact	agatggaat	aacaggtcgc	catttatgga	3180
attgtctcct	attcgttttt	catttgttgt	gttactcatg	ttttacttat	ggggggatat	3240
atataacttc	ogctgttttc	agaagtattg	tatgcagtca	gtatgagaat	gcaatttaag	3300
tttcccttgat	gctttctcac	acttctctta	ctagaataaa	gaatacagta	atattggcaa	3360
agaaaaattga	ccagttcaat	aaaaattttt	agtaaatctg	attgaaataa	aaaaaanaaa	3420
aaaaaaaaaa	aaaa					3434

Met	Asp	Gly	His	Thr	Asp	Ile	Trp	Arg	Asn	His	Met	Asp	Thr	Pro	Pro	5	10	15
His	Tyr	His	Arg	Asp	Thr	Asp	Thr	Arg	Arg	His	His	His	Met	Asp	Thr	20	25	30
Leu	Ser	His	Tyr	His	Arg	Asp	Thr	Arg	His	His	Thr	Val	Thr	Trp	Thr	35	40	45
His	His	His	Thr	His	Glu	His	Thr	Asp	Thr	Leu	Pro	Tyr	Gly	His	Trp	50	55	60
His	Thr	His	Cys	His	Thr	Val	Thr	Trp	Thr	His	Leu	His	Thr	Ile	Thr	65	70	75
Pro	Pro	His	Thr	Leu	Pro	Val	Asp	Thr	Arg	Thr	His	Arg	His	Cys	His	85	90	95
Thr	Asp	Thr	Gln	Asn	Thr	Val	Thr	Arg	Arg	His	His	His	Ala	Asp	Thr	100	105	110
Pro	Pro	Leu	Trp	Cys	Arg	Leu	Asn	Tyr	Pro	Ala	Gly	Gly	Thr	Ala	Val	115	120	125
Ala	Tyr	Ser	Cys	Leu	Ser	Asp	Trp	Leu	Ser	Pro	Gln					130	135	140

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<210> 478
<211> 143
<212> PRT
<213> Homo sapiens
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Met	Tyr	Arg	His	Thr	Glu	Thr	Leu	Pro	His	Gly	Asp	Thr	Val	Thr	Gln
				5					10						15
Ser	His	Gly	His	Thr	Gly	Ile	Val	Thr	Trp	Thr	Asp	Thr	Gln	Thr	Tyr
			20					25					30		
Gly	Glu	Ile	Thr	Trp	Thr	His	His	His	Thr	Ile	Thr	Gly	Thr	Gln	Thr
		35					40					45			
His	Gly	Asp	Ile	Thr	Thr	Trp	Thr	His	Cys	His	Thr	Thr	Thr	Gly	Thr
		50				55						60			
Arg	Asp	Ile	Thr	Leu	Ser	His	Gly	His	Thr	Ile	Thr	His	Met	Asn	Thr
	65				70					75					80
Pro	Thr	His	Cys	His	Met	Asp	Thr	Gly	Thr	His	Thr	Ala	Thr	Leu	Ser
				85					90					95	

His Gly His Thr Ser Thr Pro Ser His His His Thr His Cys Leu Trp
 100 105 110
 Thr Gln Gly His Thr Asp Thr Val Thr Gln Ile His Lys Thr Leu Ser
 115 120 125
 His Gly Asp Ile Thr Met Gln Ile His His His Ser Gly Ala Val
 130 135 140

<210> 479
 <211> 222
 <212> PRT
 <213> Homo sapiens

<400> 479
 Met Tyr Arg His Thr Glu Thr Leu Pro His Gly Asp Thr Val Thr Gln
 5 10 15
 Ser His Glu His Thr Gly Ile Val Thr Trp Thr Asp Thr Gln Thr Tyr
 20 25 30
 Gly Glu Ile Thr Leu Thr His His His Thr Ile Thr Gly Thr Gln Thr
 35 40 45
 His Gly Asp Ile Thr Thr Trp Thr His Cys His Thr Thr Thr Gly Thr
 50 55 60
 Arg Asp Ile Thr Leu Ser His Gly His Thr Ile Thr His Met Asn Thr
 65 70 75 80
 Pro Thr His Cys His Met Asp Thr Ala Thr His Thr Ala Thr Leu Ser
 85 90 95
 His Gly His Thr Ser Ile Pro Ser His His His Thr His Cys His Val
 100 105 110
 Asp Thr Arg Thr His Arg His Cys His Thr Asp Thr Gln Asn Thr Val
 115 120 125
 Thr Arg Arg His His His Ala Asp Thr Pro Pro His Gly His Ser Thr
 130 135 140
 Arg His Ser Ala Thr Gln Ile His His His Thr Glu Met Arg Thr His
 145 150 155 160
 Cys His Thr Asp Thr Thr Thr Ser Leu Pro His Phe His Val Ser Ala
 165 170 175
 Gly Gly Val Gly Pro Thr Thr Leu Gly Ser Asn Arg Glu Ile Thr Trp
 180 185 190
 Thr Tyr Ser Glu Gly Lys Ile Phe Phe Tyr Phe Leu Gly Asn Gln Ala
 195 200 205
 Arg Leu Cys Leu Lys Lys Arg Lys Lys Lys Gln Tyr Thr Val
 210 215 220

```
<400> 480
Met Glu Pro Tyr Arg Gly Asn Glu Gln Pro Ser Gln Glu Gln Gly Val
      5              10              15
Cys Cys Leu Trp Gly Leu Gln Ser Leu Pro Gln Gly Ser Tyr Val Thr
      20              25              30
Val Gly Phe Leu Val Val Lys Arg Gln Thr Ile Gly Arg Leu Glu Arg
      35              40              45
Asp Phe Met Phe Lys Cys Arg Lys Gln Pro Gly Leu Pro Pro Ser Gly
      50              55              60
Leu Cys Leu Leu Trp Pro Trp Pro Asn Leu Glu Phe Gly Arg Arg Gln
      65              70              75              80
Asp Arg Leu Thr Trp Ser Ser Val Ser Val Ala Gly Val Cys Ala Cys
      85              90              95
Arg Ala Arg Pro Gly Trp Leu Gly Glu Gln Pro Ala Thr Ser Ala Gly
      100             105             110
Val Arg Leu Glu Gln Val Glu Gln Pro Pro Ala His Pro Leu Gln Glu
      115             120             125
Ala Gly Val Ala Arg Phe Pro Arg Pro Glu Trp Val Pro Pro Asn Gly
      130             135             140
```

```

<400> 481
Met His Gly Pro Gln Val Leu Ala Arg Cys Ser Glu Cys Ala Cys Pro
      5                                10                                15
Ala Leu Ala Ala Thr Ser Ala Gly Val Arg Leu Glu Gly Val Asp Arg
      20                                25                                30
Pro Pro Thr Leu Pro Ser Gln Gly Ser Gly Trp Pro Cys Ser His Ser
      35                                40                                45
Leu Ser Gly Cys His Leu Met Ala Asp Gly Ala Lys Ala Leu Gly Lys
      50                                55                                60
Ala Asp Gly Pro Trp Pro Tyr Leu Phe Val Arg Arg Thr Asp Val Pro

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168

[illegible]

<210> 482
<211> 143
<212> PRT
<213> Homo sapiens

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<400> 482
Met Glu Pro Tyr Arg Gly Asn Lys Lys Gln Val Gln Glu Lys Gly Val
      5              10              15

Pro Cys Leu Trp Gly Ser Ser Pro Cys Leu Arg Cys His Met Ala Leu
      20              25              30

Arg Ala Ser Trp Leu Pro Gly Gly Gly Pro Gln Ala Ile Leu Gly Arg
      35              40              45

Thr Leu Cys Ser Ser Ala Glu Ser Ser Gln Asp Cys His Pro Gly Gly
      50              55              60

Pro Ser Ile Ala Leu Ala Lys Pro Cys Arg Gly Val Trp Leu Leu Phe
      65              70              75              80

Glu Pro Ala Trp Pro Pro Trp His Ala Arg Ala Pro Gly Ala Gly Thr
      85              90              95

Leu Leu Arg Val Cys Leu Ser Cys Leu Gly Cys His Leu Cys Gly Gly
      100              105              110

Ala Ser Gly Gly Gly Gly Pro Ala Thr Asn Leu Thr Gln Ser Arg Lys
      115              120              125

Trp Met Ala Met Phe Pro Gln Pro Glu Trp Leu Pro Pro Asp Gly
      130              135              140

```

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<210> 483
<211> 143
<212> PRT
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<213> Homo sapiens

<400> 483

Met Glu Thr Gln Arg Gly Asn Lys Gln Arg Ala Gln Glu Gln Gly Val
 5 10 15
 Cys Cys Leu Trp Gly Ser Ser Pro Cys Leu Gly Ser Tyr Gly Thr Ala
 20 25 30
 Gly Phe Leu Val Ala Lys Arg Arg Thr Thr Gly Leu Leu Glu Glu Asp
 35 40 45
 Phe Thr Phe Lys Cys Arg Lys Gln Pro Lys Leu Pro Ser Met Arg Leu
 50 55 60
 Ser Leu Leu Trp Pro Trp Arg Asp Leu Lys Phe Val Pro Arg Gln Asp
 65 70 75 80
 Lys Leu Thr Arg Ser Ser Val Ser Val Ala Gly Ala Tyr Ala Cys Arg
 85 90 95
 Ala Gly Pro Gly Trp Leu Lys Glu Gln Pro Ala Thr Ser Ala Arg Val
 100 105 110
 Arg Leu Val Gln Ala Glu His Pro Pro Pro His Pro Leu Glu Glu Val
 115 120 125
 Gly Met Ala Arg Phe Pro Gln Pro Glu Cys Leu Pro Pro Tyr Cys
 130 135 140

<210> 484

<211> 30

<212> PRT

<213> Homo Sapien

<400> 484

Thr Ala Ala Ser Asp Asn Phe Gln Leu Ser Gln Gly Gly Gln Gly Phe
 1 5 10 15
 Ala Ile Pro Ile Gly Gln Ala Met Ala Ile Ala Gly Gln Ile
 20 25 30

<210> 485

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 485

gggaagctta tcacctatgt gccgcctctg c

31

<210> 486

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 486

gcgaattctc acgctgagta tttagcc

27

<210> 487

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 487

cacgaattct tagctgcccc tcgaacgcc ttcatc

36

<210> 488

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 488

gggaagcttc ttccccggct gcaccagctg tgc

33

<210> 489

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 489

Met	Asp	Arg	Leu	Val	Gln	Arg	Phe	Gly	Thr	Arg	Ala	Val	Tyr	Leu	Ala
1				5				10					15		
Ser	Val	Ala													

<210> 490

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 490

Tyr	Leu	Ala	Ser	Val	Ala	Ala	Phe	Pro	Val	Ala	Ala	Gly	Ala	Thr	Cys
1				5				10					15		
Leu	Ser	His	Ser												
				20											

<210> 491

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 491

Thr Cys Leu Ser His Ser Val Ala Val Val Thr Ala Ser Ala Ala Leu
 1 5 10 15
 Thr Gly Phe Thr
 20

<210> 492

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 492

Ala Leu Thr Gly Phe Thr Phe Ser Ala Leu Gln Ile Leu Pro Tyr Thr
 1 5 10 15
 Leu Ala Ser Leu
 20

<210> 493

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 493

Tyr Thr Leu Ala Ser Leu Tyr His Arg Glu Lys Gln Val Phe Leu Pro
 1 5 10 15
 Lys Tyr Arg Gly
 20

<210> 494

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 494

Leu Pro Lys Tyr Arg Gly Asp Thr Gly Gly Ala Ser Ser Glu Asp Ser
 1 5 10 15
 Leu Met Ile Ser
 20

<210> 495

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 495

Asp	Ser	Leu	Met	Thr	Ser	Phe	Leu	Pro	Gly	Pro	Lys	Pro	Gly	Ala	Pro
1				5					10					15	
Phe	Pro	Asn	Gly												
			20												

<210> 496

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 496

Ala	Pro	Phe	Pro	Asn	Gly	His	Val	Gly	Ala	Gly	Gly	Ser	Gly	Leu	Leu
1				5				10						15	
Pro	Pro	Pro	Pro	Ala											
			20												

<210> 497

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 497

Leu	Leu	Pro	Pro	Pro	Pro	Ala	Leu	Cys	Gly	Ala	Ser	Ala	Cys	Asp	Val
1				5					10					15	
Ser	Val	Arg	Val												
			20												

<210> 498

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 498

Asp	Val	Ser	Val	Arg	Val	Val	Val	Gly	Glu	Pro	Thr	Glu	Ala	Arg	Val
1				5					10					15	
Val	Pro	Gly	Arg												
			20												

<210> 499

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 499

Arg Val Val Pro Gly Arg Gly Ile Cys Leu Asp Leu Ala Ile Leu Asp
1 5 10 15
Ser Ala Phe Leu
20

<210> 500

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 500

Leu Asp Ser Ala Phe Leu Leu Ser Gln Val Ala Pro Ser Leu Phe Met
1 5 10 15
Gly Ser Ile Val
20

<210> 501

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 501

Phe Met Gly Ser Ile Val Gln Leu Ser Gln Ser Val Thr Ala Tyr Met
1 5 10 15
Val Ser Ala Ala
20

<210> 502

<211> 414

<212> DNA

<213> Homo Sapien

<220>

<221> misc_feature

<222> (1)...(414)

<223> n = A,T,C or G

<400> 502

caccatggag	acaggcctgc	gttggtttt	cctggctgct	gtgctcaag	gtgtccaatg	60
tcagtogggtg	gaggagtcg	gggtgcgct	ggtcacgct	gggacacctt	tgacenticc	120
ctgtagagctt	tttggaatng	acctcagtag	caatgcaatg	agctgggtcc	gccaggctcc	180
aggggaagggg	ctggaatgga	tcggagccat	tgataattgt	ccacantacg	cgacctgggc	240
gaaaggccga	ttnatnattt	ccaaaacctn	gaccacgggtg	gatttgaaaa	tgaccagttc	300
gacaaccgag	gacaaggcca	cctatttttg	tggcagaatg	aatactggta	atagtggttg	360
gaagaatatc	tggggcccag	gcacctgggt	caccgtntcc	tcagggcaac	ctaa	414

<210> 503

<211> 379

<212> DNA

<213> Homo Sapiens

<220>

<221> misc_feature

<222> (1) ... (379)

<223> n = A,T,C or G

<400> 503

atnecatggt	gatttggtcaa	aggtgtccag	tgtcagtcgg	tggaggagtc	eggggggtgc	60
ctggtcacgc	ctgggacacc	cctgacactc	acctgcaccg	tntctggatt	ngacatcagt	120
agctatggag	tgagctgggt	cggccaggct	ccagggaagg	ggctgggata	catcggatca	180
ttagtagtag	tggtagattt	tacgogagct	gggogaaaag	ccgattcacc	atttccaaaa	240
cctngaccac	ggtggatttg	aaaatcacca	gtttgacaa	cgaggacacg	gccacctatt	300
tntgtgccag	aggggggttt	aattatcaag	acatttgggg	cccaggcacc	ctggtcaccg	360
tntccttagg	gcaacctaa					379

<210> 504

<211> 19

<212> FRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 504

Gly	Phe	Thr	Asn	Tyr	Thr	Asp	Phe	Glu	Asp	Ser	Pro	Tyr	Phe	Lys	Glu
1				5				10						15	
Asn	Ser	Ala													

<210> 505

<211> 20

<212> FRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 505

Lys	Glu	Asn	Ser	Ala	Phe	Pro	Pro	Phe	Cys	Cys	Asn	Asp	Asn	Val	Thr
1				5				10						15	
Asn	Thr	Ala	Asn												
				20											

<210> 506

<211> 407

<212> DNA

<213> Homo Sapien

<400> 506

atggagacag	gcttgctgtg	gcttctctctg	gtgctgtgcg	tcaaagggtgt	ccagtgtcag	60
tgcctggagg	agtcggggg	tgccttggtc	acgctggga	cacctctgac	actcacctgc	120
accgtctctg	gattctccct	cagtagcaat	gcaatgatct	gggtccgcca	ggctccaggg	180
aaggggtctg	aatacatcgg	atacattagt	tatgggtgga	gcgcatacta	cgcgagctgg	240
gtgaaaggcc	gattcaccat	ctccaaaacc	tgcaccacgg	tggatctgag	aatgaccagt	300
ctgacaaccg	aggacacggc	cacctatttc	tgtgccagaa	atagtgattt	tagtgggtatg	360
ttgtggggcc	caggcaccct	ggtcacctgc	tcttcagggc	aacctaa		407

<210> 507
 <211> 422
 <212> DNA
 <213> Homo Sapien

<400> 507
 atggagacag gactgagctg gattctctctg gtcgctgtgc tcaaaagggtg cagtggtcag 60
 tcggtggagg agtcgggggg tgcctgggtc aggcctggga caccctgac actcactgt 120
 acagtctctg gattctcctt cagcaactac gacctgaact gggtcggca ggtccaggg 180
 aaggggctgg aatggatcgg gatcattaat tatgttggtt ggacggacta cgggaactgg 240
 gcaaaaggcc ggttcacat ctccaaaacc tcgaccacgg tggatctcaa gatcgccagt 300
 ccgacaacgg aggcacgggc cactattttc tctgcccagg ggtgggaagt cgtatgagtt 360
 ggtccgtgtt tgcgcattct gggccraggc accctgggtc ccgtctcctt agggcaacct 420
 aa 422

<210> 508
 <211> 411
 <212> DNA
 <213> Homo Sapiens

<220>
 <221> misc_feature
 <222> {1}...{411}
 <223> n = A,T,C or G

<400> 508
 atggagacag gactgagctg ctctctctctg tgcctgtgtt caaagggtgt cagtggtcag 60
 cgggtggagg gtccgggggt cgcctgggtc cgcctgggac acccctgaca ctccactgca 120
 cagtctctgg aatcgacctc agtagctact gcatgagctg ggtccggcag gctccagggg 180
 aggggctcgg atggatcgga atcattggta ctctctgtga cacatactac gcgagggtgg 240
 cgaaggggcg attcaccatc tccaaaacct cgaaccagggt gcatntgaaa atencagtc 300
 cgacaaccca ggcacacggc acctattttc gtgccagaga tcttcgggat ggtagtagta 360
 ctggttatta taaaatctgg ggcccaggca cctgggtcac cgtctccttg g 411

<210> 509
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 509
 Leu Cys Lys Phe Thr Glu Trp Ile Glu Lys Thr Val Gln Ala Ser
 1 5 10 15

<210> 510
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 510
 Pro Glu Tyr Asn Arg Pro Leu Leu Ala Asn Asp Leu Met Leu Ile
 1 5 10 15

<210> 511
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 511

Tyr	His	Pro	Ser	Met	Phe	Cys	Ala	Gly	Gly	Gly	Gln	Asp	Gln	Lys
1				5				10					15	

<210> 512
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 512

Asp	Ser	Gly	Gly	Pro	Leu	Ile	Cys	Asn	Gly	Tyr	Leu	Gln	Gly	Leu
1				5					10				15	

<210> 513
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 513

Ala	Pro	Cys	Gly	Gln	Val	Gly	Val	Pro	Asx	Val	Tyr	Thr	Asn	Leu
1				5				10					15	

<210> 514
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 514

Leu	Cys	Lys	Phe	Thr	Glu	Trp	Ile	Glu	Lys	Thr	Val	Gln	Ala	Ser
1				5				10					15	

<210> 515
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 515

Met Val Glu Ala Ser Leu Ser Val Arg His Pro Glu Tyr Asn Arg
 1 5 10 15

<210> 516

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 516

Val Ser Glu Ser Asp Thr Ile Arg Ser Ile Ser Ile Ala Ser Gln
 1 5 10 15

<210> 517

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 517

Glu Val Cys Ser Lys Leu Tyr Asp Pro Leu Tyr His Pro Ser Met
 1 5 10 15

<210> 518

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 518

Arg Ala Glu Pro Gly Thr Glu Ala Arg Arg His Tyr Asp Glu Gly
 1 5 10 15

<210> 519

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 519

Arg Ala Glu Pro Gly Thr Glu Ala Arg Arg Asn Tyr Asp Glu Gly Cys
 1 5 10 15
 Gly

<210> 520

<211> 25

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 520

Val	Gly	Glu	Gly	Leu	Tyr	Gln	Gly	Val	Pro	Arg	Ala	Glu	Pro	Gly	Thr
1				5				10						15	
Glu	Ala	Arg	Arg	His	Tyr	Asp	Glu	Gly							
			20					25							

<210> 521

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 521

Ala	Pro	Phe	Pro	Asn	Gly	His	Val	Gly	Ala	Gly	Gly	Ser	Gly	Leu	Leu
1				5				10						15	
Pro	Pro	Pro	Pro	Ala											
				20											

<210> 522

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 522

Leu	Leu	Val	Val	Pro	Ala	Ile	Lys	Lys	Asp	Tyr	Gly	Ser	Gln	Glu	Asp
1				5					10					15	
Phe	Thr	Gln	Val												
			20												

<210> 523

<211> 254

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<220>

<221> VARIANT

<222> (1)...(254)

<223> Xaa = any amino acid

<400> 523

Met	Ala	Thr	Ala	Gly	Asn	Pro	Trp	Gly	Trp	Phe	Leu	Gly	Tyr	Leu	Ile
1				5				10						15	
Leu	Gly	Val	Ala	Gly	Ser	Leu	Val	Ser	Gly	Ser	Cys	Ser	Gln	Ile	Ile
			20					25					30		
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 Ser Asp Thr Ile Arg Ser Ile Ser Ile Ala Ser Gln Cys Pro Thr Ala
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 Gly Asn Ser Cys Leu Val Ser Gly Trp Gly Leu Leu Ala Asn Gly Arg
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 Met Pro Thr Val Leu Gln Cys Val Asn Val Ser Val Val Ser Glu Glu
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 Ala Gly Gly Gly Gln Xaa Gln Xaa Asp Ser Cys Asn Gly Asp Ser Gly
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<212> DNA

<213> Homo sapien

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<212> PRT

<213> Homo sapien

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180

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Val	Glu	Ala	Ser	Leu	Ser	Val
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Leu	Ala	Asn	Asp	Leu	Met	Leu
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Ser	Asp	Thr	Ile	Arg	Ser	Ile
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Gly	Asn	Ser	Cys	Leu	Val	Ser
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Met	Pro	Thr	Val	Leu	Gln	Cys
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Val	Cys	Ser	Lys	Leu	Tyr	Asp
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Ala	Gly	Gly	Gly	Gln	Asp	Gln
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Gly	Pro	Leu	Ile	Cys	Asn	Gly
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Lys	Ala	Pro	Cys	Gly	Gln	Val
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<210> 529
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<213> Homo sapiens

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Pro Cys Cys Arg Gly Ser Gly Lys Ser Asn Val Val Ala Trp Gly Asp
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Tyr Asp Asp Ser Ala Phe Met Asp Pro Arg Tyr His Val His Gly Glu
      65                                70                                75                                80

Asp Leu Asp Lys Leu His Arg Ala Ala Trp Trp Gly Lys Val Pro Arg
      85                                90                                95

Lys Asp Leu Ile Val Met Leu Arg Asp Thr Asp Val Asn Lys Arg Asp
      100                                105                                110

Lys Gln Lys Arg Thr Ala Leu His Leu Ala Ser Ala Asn Gly Asn Ser
      115                                120                                125

Glu Val Val Lys Leu Val Leu Asp Arg Arg Cys Gln Leu Asn Val Leu
      130                                135                                140

Asp Asn Lys Lys Arg Thr Ala Leu Thr Lys Ala Val Gln Cys Gln Glu
      145                                150                                155                                160

Asp Glu Cys Ala Leu Met Leu Leu Glu His Gly Thr Asp Pro Asn Ile
      165                                170                                175

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Pro Asp Glu Tyr Gly Asn Thr Thr Leu His Tyr Ala Val Tyr Asn Glu
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Asp Lys Leu Met Ala Lys Ala Leu Leu Leu Tyr Gly Ala Asp Ile Glu
 195 200 205

Ser Lys Asn Lys His Gly Leu Thr Pro Leu Leu Leu Gly Ile His Glu
 210 215 220

Gln Lys Gln Gln Val Val Lys Phe Leu Ile Lys Lys Lys Ala Asn Leu
 225 230 235 240

Asn Ala Leu Asp Arg Tyr Gly Arg Thr Ala Leu Ile Leu Ala Val Cys
 245 250 255

Cys Gly Ser Ala Ser Ile Val Ser Pro Leu Leu Glu Gln Asn Val Asp
 260 265 270

Val Ser Ser Gln Asp Leu Glu Arg Arg Pro Glu Ser Met Leu Phe Leu
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Val Ile Ile Met
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 Trp Leu Asp Glu Gln Pro Ala Thr Ser Ala Gly Val Arg Leu Glu Glu
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 Asp Val Pro Cys Pro Ala Ala Ser Glu Val Gly Gly Cys Ala Pro Ser
 180 185 190
 Ser Trp His Thr Leu Ala Glu Val Thr Gly Cys Ser Leu Ser Pro Leu
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 Trp Ser His Ile Gly Glu Thr Ser Ser His Leu Arg Ser Lys Val Tyr
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<212> PRT

<213> Homo sapiens

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Ile Gly His Lys Arg Arg Leu Glu Glu Asp Asp Met Tyr Ser Val Leu
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Pro Glu Asp Arg Ser Gln His Leu Gly Glu Glu Leu Gln Gly Phe Trp
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Asp Lys Glu Val Leu Arg Ala Glu Asn Asp Ala Gln Lys Pro Ser Leu

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 Ser Cys Leu Ala Gly Met Ala Val Leu Ile Ile Leu Leu Pro Leu Gln
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 Ser Cys Phe Gly Lys Leu Phe Ser Ser Leu Arg Ser Lys Thr Ala Thr
 210 215 220
 Phe Thr Asp Ala Arg Ile Arg Thr Met Asn Glu Val Ile Thr Gly Ile
 225 230 235 240
 Arg Ile Ile Lys Met Tyr Ala Trp Glu Lys Ser Phe Ser Asn Leu Ile
 245 250 255
 Thr Asn Leu Arg Lys Lys Glu Ile Ser Lys Ile Leu Arg Ser Ser Cys
 260 265 270
 Leu Arg Gly Met Asn Leu Ala Ser Phe Phe Ser Ala Ser Lys Ile Ile
 275 280 285
 Val Phe Val Thr Phe Thr Thr Tyr Val Leu Leu Gly Ser Val Ile Thr
 290 295 300
 Ala Ser Arg Val Phe Val Ala Val Thr Leu Tyr Gly Ala Val Arg Leu
 305 310 315 320
 Thr Val Thr Leu Phe Phe Pro Ser Ala Ile Glu Arg Val Ser Glu Ala
 325 330 335
 Ile Val Ser Ile Arg Arg Ile Gln Thr Phe Leu Leu Leu Asp Glu Ile
 340 345 350

Ser Gln Arg Asn Arg Gln Leu Pro Ser Asp Gly Lys Lys Met Val His
 355 360 365
 Val Gln Asp Phe Thr Ala Phe Trp Asp Lys Ala Ser Glu Thr Pro Thr
 370 375 380
 Leu Gln Gly Leu Ser Phe Thr Val Arg Pro Gly Glu Leu Leu Ala Val
 385 390 395 400
 Val Gly Pro Val Gly Ala Gly Lys Ser Ser Leu Leu Ser Ala Val Leu
 405 410 415
 Gly Glu Leu Ala Pro Ser His Gly Leu Val Ser Val His Gly Arg Ile
 420 425 430
 Ala Tyr Val Ser Gln Gln Pro Trp Val Phe Ser Gly Thr Leu Arg Ser
 435 440 445
 Asn Ile Leu Phe Gly Lys Lys Tyr Glu Lys Glu Arg Tyr Glu Lys Val
 450 455 460
 Ile Lys Ala Cys Ala Leu Lys Lys Asp Leu Gln Leu Leu Glu Asp Gly
 465 470 475 480
 Asp Leu Thr Val Ile Gly Asp Arg Gly Thr Thr Leu Ser Gly Gly Gln
 485 490 495
 Lys Ala Arg Val Asn Leu Ala Arg Ala Val Tyr Gln Asp Ala Asp Ile
 500 505 510
 Tyr Leu Leu Asp Asp Pro Leu Ser Ala Val Asp Ala Glu Val Ser Arg
 515 520 525
 His Leu Phe Glu Leu Cys Ile Cys Gln Ile Leu His Glu Lys Ile Thr
 530 535 540
 Ile Leu Val Thr His Gln Leu Gln Tyr Leu Lys Ala Ala Ser Gln Ile
 545 550 555 560
 Leu Ile Leu Lys Asp Gly Lys Met Val Gln Lys Gly Thr Tyr Thr Glu
 565 570 575
 Phe Leu Lys Ser Gly Ile Asp Phe Gly Ser Leu Leu Lys Lys Asp Asn
 580 585 590
 Glu Glu Ser Glu Gln Pro Pro Val Pro Gly Thr Pro Thr Leu Arg Asn
 595 600 605
 Arg Thr Phe Ser Glu Ser Ser Val Trp Ser Gln Gln Ser Ser Arg Pro
 610 615 620
 Ser Leu Lys Asp Gly Ala Leu Glu Ser Gln Asp Thr Glu Asn Val Pro
 625 630 635 640
 Val Thr Leu Ser Glu Glu Asn Arg Ser Glu Gly Lys Val Gly Phe Gln
 645 650 655
 Ala Tyr Lys Asn Tyr Phe Arg Ala Gly Ala His Trp Ile Val Phe Ile

660					665					670						
Phe	Leu	Ile	Leu	Leu	Asn	Thr	Ala	Ala	Gln	Val	Ala	Tyr	Val	Leu	Gln	
675					680					685						
Asp	Trp	Trp	Leu	Ser	Tyr	Trp	Ala	Asn	Lys	Gln	Ser	Met	Leu	Asn	Val	
690					695					700						
Thr	Val	Asn	Gly	Gly	Gly	Asn	Val	Thr	Glu	Lys	Leu	Asp	Leu	Asn	Trp	
705					710					715					720	
Tyr	Leu	Gly	Ile	Tyr	Ser	Gly	Leu	Thr	Val	Ala	Thr	Val	Leu	Phe	Gly	
725					730					735						
Ile	Ala	Arg	Ser	Leu	Leu	Val	Phe	Tyr	Val	Leu	Val	Asn	Ser	Ser	Gln	
740					745					750						
Thr	Leu	His	Asn	Lys	Met	Phe	Glu	Ser	Ile	Leu	Lys	Ala	Pro	Val	Leu	
755					760					765						
Phe	Phe	Asp	Arg	Asn	Pro	Ile	Gly	Arg	Ile	Leu	Asn	Arg	Phe	Ser	Lys	
770					775					780						
Asp	Ile	Gly	His	Leu	Asp	Asp	Leu	Leu	Pro	Leu	Thr	Phe	Leu	Asp	Phe	
785					790					795					800	
Ile	Gln	Thr	Leu	Leu	Gln	Val	Val	Gly	Val	Val	Ser	Val	Ala	Val	Ala	
805					810					815						
Val	Ile	Pro	Trp	Ile	Ala	Ile	Pro	Leu	Val	Pro	Leu	Gly	Ile	Ile	Phe	
820					825					830						
Ile	Phe	Leu	Arg	Arg	Tyr	Phe	Leu	Glu	Thr	Ser	Arg	Asp	Val	Lys	Arg	
835					840					845						
Leu	Glu	Ser	Thr	Thr	Arg	Ser	Pro	Val	Phe	Ser	His	Leu	Ser	Ser	Ser	
850					855					860						
Leu	Gln	Gly	Leu	Trp	Thr	Ile	Arg	Ala	Tyr	Lys	Ala	Glu	Glu	Arg	Cys	
865					870					875					880	
Gln	Glu	Leu	Phe	Asp	Ala	His	Gln	Asp	Leu	His	Ser	Glu	Ala	Trp	Phe	
885					890					895						
Leu	Phe	Leu	Thr	Thr	Ser	Arg	Trp	Phe	Ala	Val	Arg	Leu	Asp	Ala	Ile	
900					905					910						
Cys	Ala	Met	Phe	Val	Ile	Ile	Val	Ala	Phe	Gly	Ser	Leu	Ile	Leu	Ala	
915					920					925						
Lys	Thr	Leu	Asp	Ala	Gly	Gln	Val	Gly	Leu	Ala	Leu	Ser	Tyr	Ala	Leu	
930					935					940						
Thr	Leu	Met	Gly	Met	Phe	Gln	Trp	Cys	Val	Arg	Gln	Ser	Ala	Glu	Val	
945					950					955					960	
Glu	Asn	Met	Met	Ile	Ser	Val	Glu	Arg	Val	Ile	Glu	Tyr	Thr	Asp	Leu	
965					970					975						

Glu Lys Glu Ala Pro Trp Glu Tyr Gln Lys Arg Pro Pro Pro Ala Trp
 980 985 990
 Pro His Glu Gly Val Ile Ile Phe Asp Asn Val Asn Phe Met Tyr Ser
 995 1000 1005
 Pro Gly Gly Pro Leu Val Leu Lys His Leu Thr Ala Leu Ile Lys Ser
 1010 1015 1020
 Gln Glu Lys Val Gly Ile Val Gly Arg Thr Gly Ala Gly Lys Ser Ser
 1025 1030 1035 1040
 Leu Ile Ser Ala Leu Phe Arg Leu Ser Glu Pro Glu Gly Lys Ile Trp
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 Ile Asp Lys Ile Leu Thr Thr Glu Ile Gly Leu His Asp Leu Arg Lys
 1060 1065 1070
 Lys Met Ser Ile Ile Pro Gln Glu Pro Val Leu Phe Thr Gly Thr Met
 1075 1080 1085
 Arg Lys Asn Leu Asp Pro Phe Asn Glu His Thr Asp Glu Glu Leu Trp
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 Asn Ala Leu Gln Glu Val Gln Leu Lys Glu Thr Ile Glu Asp Leu Pro
 1105 1110 1115 1120
 Gly Lys Met Asp Thr Glu Leu Ala Glu Ser Gly Ser Asn Phe Ser Val
 1125 1130 1135
 Gly Gln Arg Gln Leu Val Cys Leu Ala Arg Ala Ile Leu Arg Lys Asn
 1140 1145 1150
 Gln Ile Leu Ile Ile Asp Glu Ala Thr Ala Asn Val Asp Pro Arg Thr
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 Asp Glu Leu Ile Gln Lys Lys Ile Arg Glu Lys Phe Ala His Cys Thr
 1170 1175 1180
 Val Leu Thr Ile Ala His Arg Leu Asn Thr Ile Ile Asp Ser Asp Lys
 1185 1190 1195 1200
 Ile Met Val Leu Asp Ser Gly Arg Leu Lys Glu Tyr Asp Glu Pro Tyr
 1205 1210 1215
 Val Leu Leu Gln Asn Lys Glu Ser Leu Phe Tyr Lys Met Val Gln Gln
 1220 1225 1230
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 1250 1255 1260

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Ala Val Val Thr Ala Ser Ala Ala Leu
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<212> PRT

<213> Homo sapiens

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5

10

15

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Gln Ala

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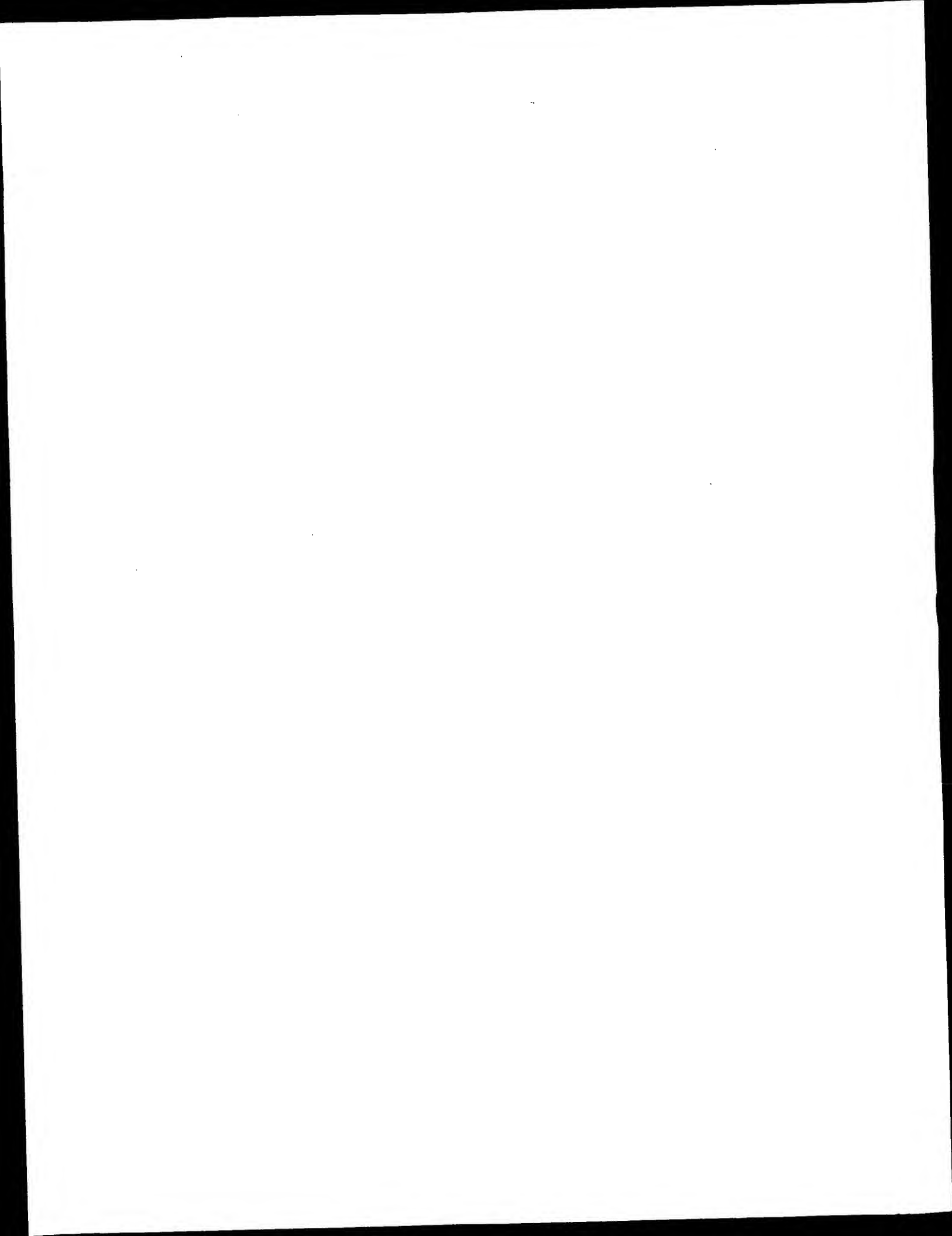
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1 5 10



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Met Asp Arg Leu Val Gln Arg Phe Gly Thr Arg Ala Val Tyr Leu Ala
5 10 15

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Ser Ala Pro Ser Leu Ser Pro His Cys Cys Pro Cys Arg Ala Arg Leu
          20                               25                      30
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Ala Phe Arg Asn Leu Gly Ala Leu Leu Pro Arg Leu His Gln Leu Cys
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Cys Arg Met Pro Arg Thr Leu Arg Arg Leu
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```
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